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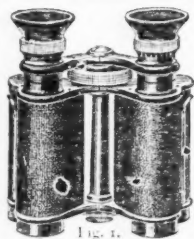


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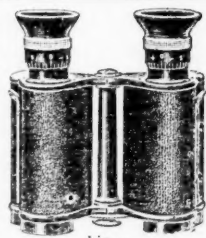


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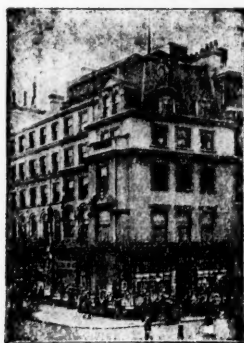
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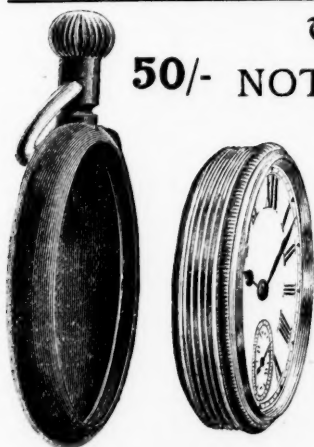
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28th—E. Cummings	9,500	70th—C. H. Ommannay	8,740
July, 1901.			
20th—G. H. Donnelly	9,689	64th—R. F. Cottrell	8,275
SANDHURST, December, 1901.			
CAVALRY.			
10th—F. B. Harndall	5,781	16th—L. C. B. Merriman	5,133
INFANTRY.			
93rd—G. R. H. B. Maitland-Addison	6,491	— C. A. Tennyson*	5,596
— —J. Stirling*	5,883	— H. A. Ibbotson	5,573
July, 1901.			
3rd Cavalry—V. C. P. Hodgson	7,539	104th Infantry—H. Hart	5,807
45th Infantry—H. G. Bignell	6,723	120th " H. T. C. Jones-Vaughan	5,590
96th " M. J. Raikes	5,911	4th King's India Cadet J. S. Oldham	5,521
97th " J. G. P. Romanes	5,886		

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13th—A. E. Burnett	5,083	14th—R. C. G. Pollock	4,970
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CAVALRY.

— E. R. Holloway 10,162

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1st—C. E. Pym	18,159	2nd—H. H. Webber	14,109
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4th—E. S. Ward 8,281

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9th—T. E. Bennett	18,103	22nd—L. A. Jones	16,733
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- Capt. A. GRANT-DUFF, 1st Bn. Royal Highlanders.
- Capt. A. H. H. WILSON, 2nd Bn. Wiltshire Regt.
- Capt. N. MALCOLM, D.S.O., 2nd Bn. Argyll and Sutherland Highlanders.
- Capt. S. W. KING, Indian Staff Corps.
- Capt. H. D. FARQUHARSON, Royal Marine Light Infantry.

And in addition, the following Officers received Nominations:—

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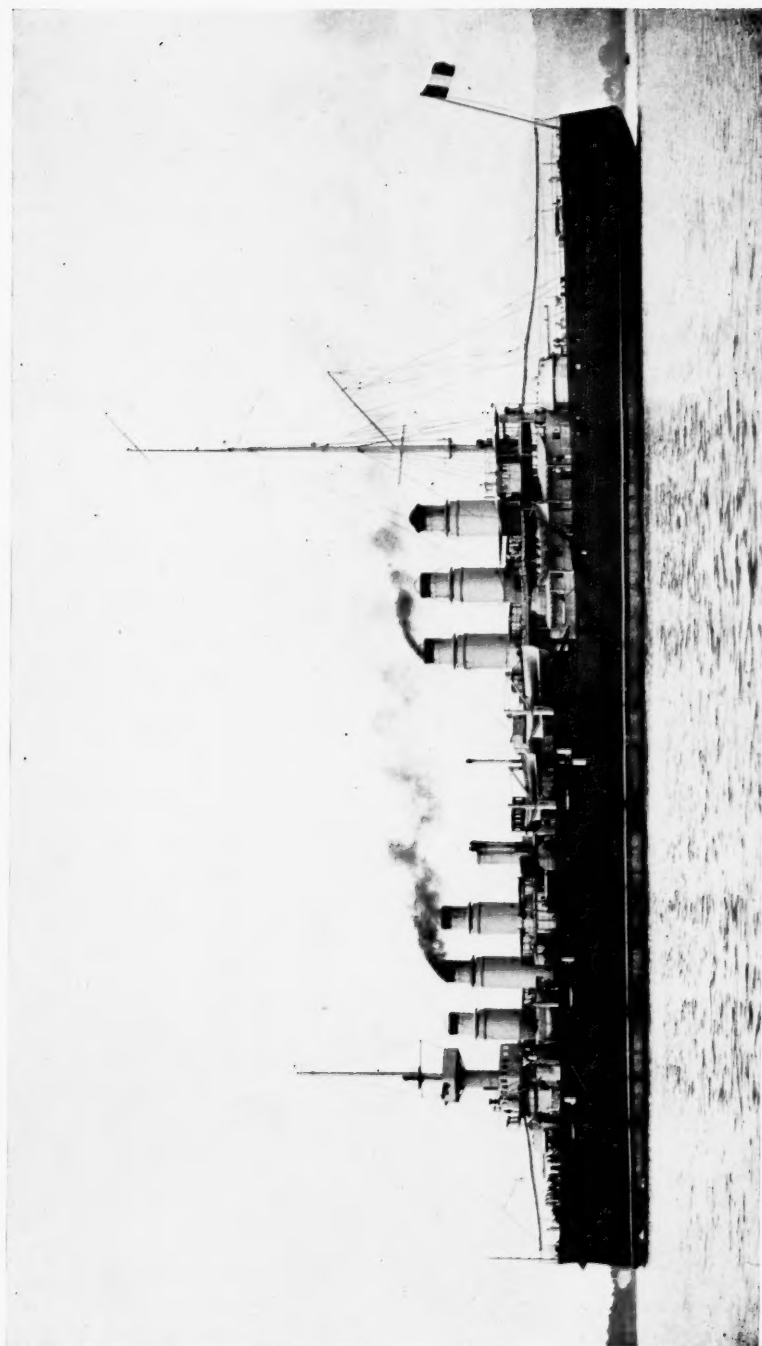
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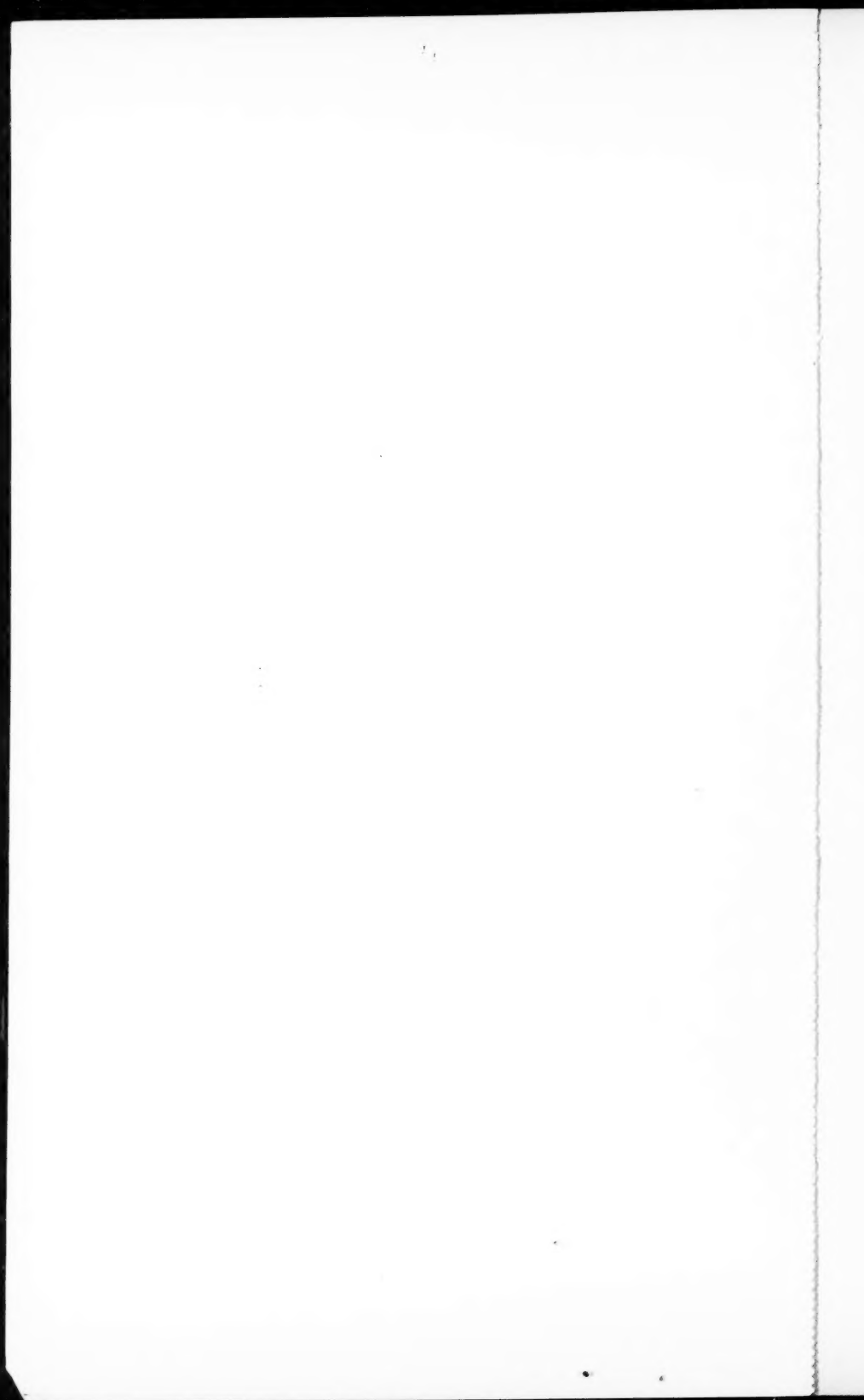


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THE JOURNAL

OF THE

ROYAL UNITED SERVICE INSTITUTION.

VOL. XLVI.

JULY, 1902.

No. 293.

[*Authors alone are responsible for the contents of their respective Papers.*]

GARRISONS FOR COALING STATIONS.

*By Sir JOHN C. R. COLOMB, K.C.M.G., M.P. (Late Captain
Royal Marine Artillery.)*

Thursday, 10th April, 1902.

The Rt. Hon. Viscount HAMPDEN, G.C.M.G. (late Governor of New South Wales), in the Chair.

INTRODUCTION.

THE circumstances under which these papers are submitted for discussion being unusual, it is desirable to explain them. The paper and its Appendix are copies of communications officially addressed by me to the authorities concerned on my own initiative and responsibility. In both cases I at the time notified my intention to subsequently publish them. This to a limited extent was done, with the result that the able writer of a series of articles in the *Times*—on “The War Training of the Navy”—in one of them incidentally suggested that the Institution might well discuss my Memorandum to the Admiralty of 28th September last year. It is right to say the writer did not endorse my views. Seeing this, and noticing elsewhere a similar suggestion, I thought it well to notify to the Council of the Institution my willingness to submit the Memorandum for discussion. It appears that by only a brief space of time I had anticipated a communication on the subject. Under these circumstances I desired to lay before the Institution the most complete statement of the issues raised. It was therefore necessary for me to associate with the Memorandum another document, viz., my letter to the Duke of Devonshire, now more than four years old. Thus it remained for me to present both the Memorandum submitted to the First Lord of the Admiralty and

my letter to His Grace the President of the Defence Committee of the Cabinet in the form best suited to the present occasion. Obviously I ought not to condense them, certainly I could not alter them; while to read them both would be an unendurable tax on the patience of the audience and a curtailment of available time for the discussion, to invoke which I am here. In order of date the letter to the Duke of Devonshire—9th December, 1897—should come first, but it is relegated to the Appendix for the following reasons:—

1. The object of the letter was to submit to the Defence Committee of the Cabinet certain considerations which are forbidden ground in the House of Commons, viz., those which embrace both Navy and Army in their purview, and determine their relation to and influence upon each other as the two great factors in the problem of British defence.
2. Since the letter was written, the Secretary of State for War has officially declared the desire of the War Office to have some infantry battalions garrisoning certain coaling stations abroad relieved by Marine Infantry.
3. The First Lord of the Admiralty has announced the intention of the Admiralty to give this proposal of the War Office most careful consideration.

That being the present official position of the question of garrisons for coaling stations, it seems to me more suitable to treat my Admiralty Memorandum as the paper to be read, and my letter to His Grace as an Appendix, while offering both for discussion.

Other observations it is imperative I should make.

When I wrote the Memorandum—some five months ago—Wei-hai-Wei was a military garrison on the China naval station, in pursuance of the policy announced by the War Office in 1899—that Wei-hai-Wei was a secondary naval base, and was to be fortified as such; hence in illustrating the application of the principle I was advocating by reference to the China station, I was bound to accept Wei-hai-Wei as a naval base with a military garrison; thus Wei-hai-Wei became a feature in the Memorandum, and there it has to remain. Within the last few weeks, however, the Admiralty have officially announced that Wei-hai-Wei is not to be fortified as a secondary naval base, and that the military garrison there is to be withdrawn. This change does not in the slightest degree affect the policy supported in my Memorandum, but merely reduces the estimate of numerical strength of garrisons in the China seas.

The Admiralty announcement in 1902 gives me as much satisfaction as the declaration of the War Office in 1899 filled me with dismay. Taken both together they show the folly of expecting either efficiency or economy as fruits of policy spontaneously, but intermittently,

evolved somehow and somewhere, between two departments, one in Whitehall, the other in Pall Mall; they exhibit the necessity for the creation of some new and permanent authority in the Empire abiding by principles, and supervising and controlling their effective application, in order to secure continuity of policy in arrangements for British defence. They give point to that fact, in respect of Parliamentary procedure, to which I referred in my primary reason for putting my letter in the Appendix; and they also present an almost comic picture of the results of the system upon which we now rely in peace to secure in war the safety of our gigantic and complex Empire.

With reference to the broad aspects of the whole question, I may be permitted to observe that my first paper, laid before the Institution, was read on 15th January, 1869; the subject was "The Distribution of our War Forces." It opened with an apology for my defiance of precedent by attempting a new departure. It offered the plea of justification as my excuse. The new departure lay in refusal to contemplate the defence of the United Kingdom apart from that of the outlying Empire, and insistence that both must be regarded as parts of one great concrete whole, boldly asserting that the distribution of the Navy and Army cannot be separately considered. The excuse for my temerity was tendered in these words:—"I am unable to see how it is possible to separate the one from the other."¹

Now the history of administration and methods of arranging for British defence, during the 33 years which have intervened, may be thus summarised. It is but a record of policies without principles; of erratic variation of ideas expressed in temporary expedients, and of vast expenditure to please passing departmental fancies. Army Reform was the cry in 1869, it is the cry to-day. Wei-hai-Wei is the latest witness against the continuance of this state of things and testifies to the validity of my ancient excuse.

On this, probably the last, occasion on which I appear as a lecturer, I desire to formally withdraw the apology I offered for my first—time having vindicated the truth of my contention and made plain now what was then, unhappily, obscure.

I now pass to the subject for discussion this afternoon.

*Memorandum submitted to the First Lord of the Admiralty,
28th September, 1901.*

1. The transfer from the War Office to the Admiralty of the control and custody of coaling stations is a question the answer to which must be governed by purely naval considerations.

¹ Vol. XIII., p. 37, JOURNAL.

2. Coaling stations being but adjuncts to the efficient exercise of sea power, all arrangements relating to their local security are subordinate to the efficiency of the fleets or squadrons on the station of which they are bases.

3. All such positions which are only attackable from the sea, or dependent on intake from seaward for coals for the ships, and stores and supplies, for both fleet and garrisons, must obviously rely on purely maritime operations for ability to discharge their functions as places of storage of such supplies.

4. The local armament, however heavy, and the garrison, however strong, can but provide safe custody of coals and stores after delivery; they cannot in any shape or form secure their delivery. The utility, therefore, of a coaling station primarily depends not on the garrison but on the fleet.

The operations of the fleet or squadron on a station cannot be divorced from responsibility for all supplies reaching the base.

Until the hostile ships are by the exercise of maritime *force majeure* accounted for, and their freedom of action controlled, no admiral can disregard the lines of supply and the offings of his base beyond range of shore guns. When the hostile ships are accounted for, and their freedom of action prevented, the lines of supply are secure, and—so is the base.

5. It is only during the period intervening between the outbreak of war and this consummation of the exercise of superior sea power, that the lines of supply, and the base itself, are liable to attack by war-ships.

In this connection, I submit that the small amount of ammunition, and the limited life of guns carried by war-ships, tend to reduce the probability of their attacking very moderately defended fixed positions. It seems to me that the most recent experience, by sea and land, suggests that the effect likely to be produced by artillery fire on moderately defended positions in proportion to the ammunition consumed reduces almost to a minimum the risk of attack by war-ships on such positions.

As regards improvised war-ships—armed merchantmen—argument founded on limitation of ammunition may possibly not apply, but the immeasurable advantage of attacking commerce, and the insignificance of the risk thereby incurred, render it almost inconceivable that such vessels will attack any fixed positions which have even very limited means of defence.

These are, in brief, my reasons for thinking that we have exaggerated risk, and overdone fortifications of coaling stations, and consequently their garrisons. I do not, therefore, accept the War Office standard of the numerical strength of their garrison establishments as a guide for the Admiralty in the event of their taking over any of these bases.

6. Hostile ships may be accounted for by one of three ways:—

- a.* Destruction.
- b.* Capture.
- c.* Being driven to port.

In cases *a* and *b* the result is final; in that of *c* it is not. An element of uncertainty must prevail in inverse ratio to the power of observation and control exercised by the force outside.

In any case, the situation must have this peculiar aspect—the inferior force inside will tie down a relatively larger force outside its port of refuge. That is a state of things which must be terminated as quickly as possible. As a general rule, it can only be ended by:—

- d.* Cutting-out the vessel; or
- e.* By landing parties to occupy positions on shore in order that the vessel's position may be rendered untenable by dominating artillery fire from positions so occupied.

It seems to me that the operation of cutting-out does not, under modern conditions, offer such prospects of success as would warrant the almost certain sacrifice of men in the attempt. Conditions will vary, of course, according to the cover afforded by shore defence of the port or harbour. At ports permanently defended the "digging-out," so to speak, of ships must be a military operation necessitating the employment of an army—as at Wei-hai-Wei and Santiago. These great operations lie outside present consideration, which must be confined to minor operations of maritime war.

It was the apparent tendency of machinery to reduce a ship's complement which, 34 years ago, first led me to consider the problem of future maritime war, assuming that tendency developed to any considerable extent.

We have now reached a stage in that development which I submit does call for recognition in naval arrangements, and confirms opinions I then formed.

Briefly stated, the question now presents itself in this form:—

There are no men to spare in modern ships; how, therefore, are the requirements of minor operations of maritime war, which lie outside the ship, to be performed?

Would, for example, a naval commander now be justified in attempting a cutting-out expedition which would, by inevitable losses, more than probably destroy the fighting efficiency of his own ship? Would he be justified in imperilling the fighting capacity of his ship by undertaking necessary shore operations such as have been indicated?

Failure in either event means, at the very least, enhanced chances of escape of the hostile ship, which it is his primary duty to prevent: it may mean, still worse, the consequential loss of his own.

Without further elaboration, I submit that on any distant naval station the outbreak of war should not find our admiral without force at his disposal and available for general service, afloat or ashore, exclusive of the complement of his ships.

7. If this view be in any sense a reasonable one, the next question is, What is to be done with this supernumerary force in peace ?

Obviously, its place would be at the base ; and if at the base, why should the nucleus of the Reserve force for war not form the peace garrison ?

It is hard to understand objections to the admiral being the supreme authority over all arrangements of his station, including those at his own base. Such powers and authority could be delegated to the officer in charge of the base as necessity and expediency required. Just as in detaching a squadron to some distant part of a station, the admiral yet remains the supreme authority, why cannot an officer in command at the base be considered in exactly the same relation to the admiral as the officer in command of a detached squadron ?

8. Such an arrangement would provide in peace for the presence of a force supernumerary to that forming the complements of his ships. The question, however, remains as to the means of rendering this peace garrison mobile for general service on the station after a state of war exists.

Now, it is at least doubtful that hostile ships could be at once located, and until they were, the force at the base would not be likely to be required to leave it.

Whatever be the peace arrangement, it is certain that, in war, a force of some sort will be required in the future as in the past for minor operations at ports and on coasts. The release of the peace garrisons for general service is a question of reserves trained and adapted to promptly take their place on the outbreak of war.

My own view is that we could look to the Colonies for producing such a force in war, but kept in reserve in peace. Whatever be the nature and description of the force best suited to the naval bases and requirements, the organisation and training of such colonial reserves of force should conform to and so far as is possible, be associated with, the active force furnishing the naval garrisons. It seems to me that such an arrangement would get over many of the difficulties presented by the question of Colonial Naval Reserves, Volunteers, etc. A force auxiliary to, rather than a Reserve for, the Navy, could best be furnished by the Colonies. The report of the Tryon Committee on Royal Naval Artillery Volunteers was so adverse to that body, as then constituted, that it properly led to the abolition of the force. It did, however, suggest that the proper *rôle* of volunteer auxiliaries to the Royal Navy was that of the Marine

Artillery. It fully confirmed the views I took and expressed, in opposition to the formation of Royal Naval Artillery Volunteers on the lines first suggested by Lord Brassey, and in effect carried out by his efforts.

The so-called naval contingent furnished by Australia as part of the naval force which did admirable and gallant work in China under the Commander-in-Chief of the station, illustrated on a small scale what I feel sure could be done on a larger one by a process of development. I use the words "so-called" advisedly, because, except in name and dress, the Australian contingent was a Marine Artillery, and not a seaman force. As a matter of fact, however, the seaman gunner in H.M.'s Fleet to-day is but a Marine Artillery gunner called by a different name, and wearing a different and far more suitable dress.

The influence of name and dress on the popular mind, and, consequently, an attraction to men to serve, cannot be ignored. The results of the Tryon Committee prove this to be so. The Royal Naval Artillery Volunteers would not become Royal Marine Artillery Volunteers. Attempts have been made to produce popular pressure to alter the Admiralty decision on Naval Artillery Volunteers; but no person, however patriotically inclined, has, to my knowledge, ever seriously entertained the idea of starting a Marine Artillery Volunteer force. I do not believe any Colony would co-operate with the Navy by forming a Marine Artillery Reserve, but I have no doubt whatever there would be great readiness to form a Reserve, identical with the Marine Artillery, and to do in war precisely the same work, provided the force be called "Naval," and be dressed as bluejackets. It is the work to be done that is essential, and not the name or dress. The work to be done in maritime war will undoubtedly now, as of old, necessitate the use of considerable forces under the admiral's control which, in these days, cannot be carried as part complement of the ships. I advocate the garrisoning of two naval bases in the other hemisphere as a step in the development of a policy of embracing Colonial Auxiliary Reserves for general service in war under the admirals. I suggest using the Marine organisation and system as the pattern and connecting link between such Naval Auxiliary Reserves in the Colonies to prepare them in peace, with that cohesion and uniformity essential to efficiency when the various detachments are brought together in war.

The Royal Navy of to-day, in its general organisation and training, is tending to become what the Marine force always was, and the Colonial Naval Auxiliary Reserves could have no better pattern to follow or nucleus to rest upon, no matter by what name they may be called. When in war these reserves were called to the naval bases, the admiral on each station would have a homogeneous mobile force at his command, while the regular peace garrison would be free to fill up casualties in his ships if needed.

The self-governing Colonies would, during peace, only require a very few officers and non-commissioned officers as instruction staff at each of their reserve headquarters, these being as frequently changed as requisite. The admiral of each station would supervise and inspect as he saw fit, and afford to members of the Reserve such opportunities as might be desired for sea experience.

This policy would, if carried out, produce a Colonial Auxiliary Naval force, homogeneous, associated with the Navy, adapted to coast operations, etc., incidental to maritime war, and available for the release of the peace garrisons of coaling stations—the real reserve for the ships or the station in war.

9. Such being the outlines of a policy I have so long advocated, it remains for me to submit my reasons for holding that within certain limits the garrisoning of distant naval bases with Marine forces would neither be detrimental to the efficiency of the Fleet nor deteriorate the Marines.

I submit that past experience hardly warrants the strong objections held by so many distinguished admirals to such a mode of employing a portion of the Marine forces. The proposal is, after all, but a very insignificant and partial application of the policy so strongly urged by Lord St. Vincent and by many other great naval administrators down to Sir James Graham.

It is now, I see, generally believed that if Marines were in the course of their service more on shore and less afloat than they are at the present time they would not be efficient for the service of the Fleet for which they exist. It is therefore assumed that as an increase of these forces would be necessary in order to supply garrisons for coaling stations, such increase, by lessening the proportion of time spent afloat, would detract from their efficiency when embarked. But unless it can be shown that marines have more to learn when afloat in modern mastless vessels than in days of sailing ships, an appeal to past policy and practice robs that objection of cogency. It is curious to compare the views of naval authorities of to-day on this question of keeping a large reserve of Marines on shore in peace, with those of great admirals and naval administrators in days of sailing ships and pure seamanship. But upon this I need not dwell, except to observe that the modern practice of training seamen in barracks on shore seems to have sought compensation in keeping Marines more afloat than was the custom in days prior to the universal adoption of steam. The proportion of time spent on shore during the period of a Marine's service depends upon the numerical strength of those forces in relation to the numerical strength of the rest of the *personnel* of the Navy; and Admiralty practice, past and present, can thus be tested by figures.

For practical purposes the year 1858 may be taken as a starting-point for enquiry.

In that year the Royal Commission on Manning the Navy sat. All H.M.'s ships were then fully rigged, and certain flag-ships and others on distant stations had not even auxiliary steam power. The following table shows the ratio of Marine forces at different dates to the rest of the Navy—the Engineer branch of course being excluded as an element outside the question.

TABLE "A."

Proportion of Marines to Total Personnel, less Engineer Branch.

Year.	Total Personnel, less Engineers.	Marines.	Total.	Marines to every 100 Personnel.
1858	51,287	14,919	66,206	29
1868	59,003	15,970	74,973	27.06
1878	50,146	13,727	63,873	27.3
1888	49,993	12,847	62,840	25
1898	73,251	17,099	90,350	23
1900	80,548	18,461	99,009	22.9

The above table shows that in 1900 the ratio of Marines was over six per cent. less than in 1858, and that, according to the 1858 standard, the strength of the Marine forces in 1900 should have been, say, 23,360 instead of 18,461, which was the actual establishment, a difference of about 4,900.

It may, however, be thought that a truer basis of comparison would exclude the civil branch, and Table "B," therefore, compares the ratio of Marine forces to the Executive branch alone, excluding boys.

TABLE "B."

Proportion of Marines to Executive Branch—Exclusive of Boys.

Year.	Total Executive Branch, less Boys.	Marines.	Total.	Marines to every 100 Executive.
1858	24,666	14,919	39,585	60.4
1868	24,407	15,970	40,377	65.4
1878	22,163	13,727	35,890	61.9
1888	23,170	12,847	36,017	55.8
1898	34,796	17,099	51,895	49.1
1900	39,811	18,461	58,272	46.3

This table shows that, as compared with the Executive branch, the Marine branch has declined by 14·1 per cent. between 1858 and 1900. So that in a year of mastless armoured vessels there were roughly speaking, 5,000 less Marines than, according to the 1858 standard, was considered the proper proportion in days of rigged ships.

Now, the Manning Commission in that year (1858), after exhaustive enquiry, so far from thinking the proportion of Marines too great, recommended the increase of the Marines by over 30 per cent. in the following words :—

“There is ordinarily a Reserve of 6,000 Marines at the home ports ready for active service afloat. We think this force might with great advantage to the State, and without impairing its efficiency, be increased by 5,000 men, who would be well fitted to garrison the seaports in time of peace, and when required to serve at sea they could be at once embarked, and their place in the seaports supplied by the Regular Army or Militia.”

This recommendation of the Commissioners to increase the Marine forces was not carried out. It will, however, be observed from Table “B” that during the next decade the ratio of Marines was increased.

In 1868 the percentage of the Marines to the Executive branch was 5 per cent. more than in 1858. Since 1868 it has been steadily reduced, the drop between 1868 and 1900 being 19·1 per cent., while the additions provided for in the Estimates of the current year do not materially affect the difference.

One of the Commissioners—Mr.⁴ S. W. Lindsay, M.P.—dissented from the conclusion arrived at. He was a great shipowner, the historian of the Mercantile Marine, and the pre-eminent authority on ships and shipping. His reasons for dissent, which were stated fully, may be thus summarised :—

1. The failure of his colleagues to appreciate the influence of steam and machinery on the constitution and organisation of the *personnel* of the Fleet.
2. That the policy best suited to the new conditions lay rather in the direction of the Marine than Seaman branch.

His letter to the Chairman of the Commission, and a subsequent memorandum he submitted to the First Lord of the Admiralty, 1st January, 1870—twelve years later—fully set forth his views. These documents throw much light on the naval opinions of that day. He pointed out how slow the Navy had been to adopt improvements offered by mechanical science. He spoke of “our naval authorities who seem to be under the impression that a sailor is a being sprung from a different race from the civilian or the Marine.” He strongly advocated a great increase of Marines and employing them as garrisons in peace “at the

Cape and other military and naval stations in our Colonies, as well as at the great naval ports." "Old seamen," this great shipowner observes, "may ridicule this arrangement and say that Marines have no 'sea legs,' and that not being accustomed to the sea they will suffer from sea-sickness. I can, however, predict that in a very short time the Marine will be as efficient for the performance of the duties allotted to him as any seaman on board." His policy, however, did not prevail, though so strongly backed by evidence before the Commission given by Sir James Graham—twice First Lord of the Admiralty. Putting aside altogether the question of Marines, no one can now read Mr. Lindsay's letter above quoted without being impressed by the fact that he, and he alone, among his colleagues on the Commission saw clearly and distinctly the effect that progress in science and mechanics was having, and must have, on the *personnel* of the Fleet. The revolution has taken place and forced bluejackets towards the shore for drills and training. It is the bluejacket element, and not the Marine, that the revolution has transformed, as Mr. Lindsay anticipated, but the figures given above show that our policy has, in the matter of ratio and shore time of Marines, proceeded in a totally opposite direction.

10. One other aspect of this simple question of relative numerical strength deserves a reference. It is the question of reserves. In this matter our policy has in recent years entirely changed. Up to a very recent period our national policy was to regard and treat the Marine forces on shore as the first and great standing reserve for the Navy. Its abandonment appears to be coincident with the disappearance of masts and yards, and the consequent gravitation of bluejackets to land drills and exercises. The Admiralty have made and are making great efforts to create a large bluejacket reserve, but nothing has been done, that I am aware of, to establish any similar reserve for the Marine forces. The new "Fleet Reserve," being composed of both branches, will doubtless contain the same relative proportion of branches as in the active portion of the service. This reserve, therefore, need not be further referred to.

At present the Royal Naval Reserve numbers some 27,000. I am not aware what portion of this belongs to the Executive branch, presumably two-thirds or 18,000.

The calling up of the Naval Reserve therefore, would add, say, 18,000 to the Executive branch. By adjusting the figures given for 1900 in Parliamentary Return (No. 165 this session), by those in this year's (1901-2) Estimates, we arrive at these figures as the peace provision for the active force:—

Executive branch, exclusive of boys, say	- 41,000
Marine branch	- - - - - 19,590

That is, about 48 Marines to every 100 of the Executive branch ; but the calling up of the Naval Reserve would, by adding, say, 18,000 to that branch, reduce the ratio to about 33 Marines to every 100 of the Executive branch. It is therefore clear that Admiralty policy in effect is now to prepare to produce in war a Fleet with a relatively less number of Marines than in peace, or to improvise untrained and wholly inexperienced Marines in a hurry for the service of the Fleet, when the Naval Reserve is called up, in order to restore the numerical ratio. On the assumption of calling up the Naval Reserve of 18,000 Executive branch there would be required over 8,500 Marines to maintain the ratio of the peace establishment. For this our existing arrangement makes no provision at all.

I have now dealt with figures illustrating a great change in Admiralty policy in this matter. My object has been to endeavour to show that to advocate a numerical increase of Marines to provide for garrisoning coaling stations is not so revolutionary as so many authorities seem to think. I have shown by Table "A" that on a basis of comparison of the ratio of Marines to the Executive and Civil branches combined (thus excluding the Engineer branch) an addition of 4,900 Marines would merely re-establish the ratio of 1858 ; and that, on the basis of comparison with the Executive branch, 5,000 would simply restore the ratio of that year when an increase of 5,000 Marines to the then establishment was, after exhaustive enquiry, recommended by the Manning Commission.

The restoration of the old ratio would but result in Marines spending as much of their service on shore, in days of mastless iron boxes of machinery, as experience and policy provided for in days of sailing-ships, and much less time on shore than the recommendation of the Royal Commission contemplated. It is quite a modern idea that Marines must be, during their period of service, more afloat than ashore. Whether the reduction of the ratio of Marines to the Executive branch produced the idea, or the idea produced the present relative figures, there is no public evidence to show.

It is of historical interest to observe that when in 1817 the *personnel* of the Navy reached the lowest point in the century, viz., a total of 19,000 voted, 6,000 of that number were Marines. To make a comparison with our policy now, I deduct from the 118,625 voted this year 27,325 for the Engineer branch. This leaves 91,300, of which 19,590 voted are Marines. It is somewhat startling to remember that if the policy of 1817 in those days of pure seamanship now prevailed, the Marine element would muster some 33,000, and therefore the service afloat of the Marine would be, as it must have been then, almost nominal. The *personnel* of the Fleet reached its maximum in last century during years of war—1810, 1811, and 1812, in each of which years a total of 145,000 were voted, 31,400 being Marines. Now, 18,000 Naval Reserve being added to

present figures—less Engineer branch—brings the present total up to 109,300, which, according to the war standard of 1810-12 gives 23,600 Marines, or, say, 4,000 more than are now provided.

Of course, in those days the Marine forces formed, with the sea officers, the only standing Navy. Happily, this is all changed, but this circumstance does not affect the question of the proportion of service afloat necessary to secure and preserve Marine sea efficiency. That, and that alone, is the determining factor in the problem of the true limits of relative strength of the Marine forces to the Navy proper, and it is for that reason I have ventured at much length to call attention to official figures and recorded facts. I submit the weight of evidence I have produced goes to show that an increase of 5,000 Marines to the present Force can be justly and fairly held to be a moderate and reasonable proposition. It falls very far indeed short of the authoritative recommendation of the Manning Commission I have quoted, and looking at what ships were then and are now, it cannot be said any case against that recommendation has been strengthened.

Now 5,000 additional Marines would not only provide for the white garrisons at Hong-Kong and Wei-hai-Wei, even according to the present War Office establishment, which aggregates 2,168, but would also more than provide for necessary reliefs, at home, of these garrisons.

11. Assuming it to be decided that it was desirable to adopt the principle of the Navy taking over the custody and control of coaling stations, the process of applying it must be a very gradual one. In its early stage the change should be cautiously applied, and perhaps to one naval station only. Many reasons and recent experience combine to suggest the China station as demanding special consideration. The growing naval power of Japan, the action of European States, and the preponderance of British commercial interests in that region, give to that station special importance. Its remoteness from the mother country, as compared with the relative proximity of Canada and Australasia, obviously points to the necessity for preparation for eventualities by a combination of British resources. The proposition that the Dominion and the Commonwealth should be associated with the mother country in the practical arrangements necessary to secure promptness and decision of action in the Chinese region of the Pacific is, surely, not an unreasonable one.

It seems to me, therefore, that by combining the question of naval garrisons for Hong-Kong and Wei-hai-Wei with that of Colonial Naval Reserves a beginning might be made with the definite object and distinct purpose of providing for the immediate and pressing requirements of the China station in the event of war. Probably, the view taken by the Colonial Governments concerned would be more influenced by the precise nature of the proposition than by the abstract principle of

its justice. It appears to me the proposition itself might take the form of a compromise over the Colonial Naval Reserve question. In short, that Australasia and Canada should jointly undertake to provide a naval auxiliary reserve force for general service in war, the numerical strength of which being determined by reference to the immediate requirements of the China station on the outbreak of war. I would suggest taking the strength of the garrisons of Hong-Kong and Wei-hai-Wei as representing the numerical strength of such auxiliary naval reserve, say, 2,500. The proportion to be provided by the Dominion and Commonwealth respectively is a subordinate matter to be settled by mutual agreement. I have already indicated the general features of the organisation and training of such a colonial auxiliary force. On this basis these Colonies would be asked to provide a reserve for war of half the active force maintained by the mother country in peace for the garrisons and relief of naval garrisons at Hong-Kong and Wei-hai-Wei—surely not an unfair or unreasonable suggestion. The cost to the Colonies would be insignificant; the object would be definite—the immediate production, on the outbreak of war, at Hong-Kong and Wei-hai-Wei of a colonial auxiliary force associated with the Navy, and adapted to the minor operations of maritime war. I confess I am apprehensive of an outbreak of maritime war overtaking us and finding our admirals on distant stations without any force but the complements of their ships to carry out coast operations incidental to, and inevitable in, maritime war. It is a policy which I am convinced is fraught with peril. On the other hand, there is an evident, if somewhat theoretical, desire on the part of the Colonies to create naval reserves, but a disinclination to accept conditions as to pay, training, service afloat, etc., which, unless imposed and accepted, would not produce really effective and efficient results.

This course, suggested as a definite policy, would fill the gap in our arrangements which any comprehensive view of the situation on the outbreak of war discloses. It offers a practical mode of embracing colonial aid for the prosecution of operations incidental to maritime war. It would afford a basis for the settlement of the Colonial Naval Reserve question, while avoiding complexities in the internal organisation of the Fleet, by the introduction of colonial units on a higher scale of pay than those of the mother country, which would be unjustified by superior efficiency. It is a moderate proposal, based on the report of the Tryon Committee on Royal Naval Artillery Volunteers, applied to the Commonwealth and the Dominion. It would allocate to those British provinces a definite place in Imperial organisation in the other hemisphere, without sacrificing that unity and centralisation of control so essential in the exercise of maritime power. The mother country and these great

Colonies would be thus associated in a new departure adapted to modern requirements in a region where increased precautions are most needed.

12. The building up of a homogeneous colonial auxiliary force in reserve, closely associated with, and organised and trained like, the Marine forces of the mother country would thus be begun. This force would be capable of future development as required. It could be afforded opportunities of participating in that still further approximation of blue-jackets and marines, which must be the result of progress in mechanical science—approximation even now so close as to bring the question of amalgamation not far distant. The process of complete unification of home and colonial forces must be left to time and necessity to produce by degrees, but it is the business of policy to assist rather than thwart natural and inevitable tendencies.

With Marine garrisons at distant naval bases, and a colonial auxiliary naval force as their reserve, and available to relieve and supplement them for general service, our admirals would be at once freed, on the outbreak of war, from all anxieties as to filling up casualties in their ships, and be able to promptly prosecute operations of war.

Recent experience on the China station has made it manifest that our existing arrangements are inadequate to meet any sudden emergency. The fighting condition of many of H.M. ships during the period of the gallant and necessary attempt to relieve the Legations at Peking affords a lesson not to be disregarded. The advantage of an admiral having at disposal a force supernumerary to the complement of his ships was illustrated by Sir Edward Seymour being able to draw the detachment of Marines on shore from Wei-hai-Wai for the requirement of the Legation guard. The disadvantage of no such reserve being at an admiral's disposal is to some extent illustrated by the case of H.M.S. "Sybille," sent on particular service necessitating a landing. A considerable portion of her complement was landed, and in its absence the ship was lost.

It seems inconceivable that the Government of the Commonwealth and Dominion would, if invited by the mother country, refuse to co-operate on a settled and definite plan for providing for eventualities in Chinese waters.

13. I have now endeavoured to indicate the outline of a policy of which the substitution of Marine for Army garrisons at Hong-Kong and Wei-hai-Wei, and the transfer of their control and custody from the War Office to the Admiralty, are integral and essential parts.

14. It remains to offer some remarks on objections which have been made by eminent naval authorities to so employing any portion of the Marine forces. I venture to think that a good deal of the hostility to the proposal is due to two main causes: the instinctive conservatism of the Naval Service, which resists innovation; and the form and manner in

which the proposition has been officially made. On the latter point I wish to say: I regret the circumstance which makes it appear as a War Office plan for relieving the Army of disagreeable duties at unhealthy places, and casting on the Navy Estimates a charge which Army Estimates have hitherto borne. The proposal to simply replace certain Line battalions with Marine battalions at the more unhealthy stations is not one likely to be accepted as just by the Naval Service. I do sincerely hope, however, that a principle of policy may be examined from a higher level than that of departmental convenience, and decided solely by reference to the requirements of maritime war.

My suggestion to limit the application of the principle to the China station minimises, if it does not destroy, the reasons against the War Office proposals, advanced by the ex-First Lords of the Admiralty, who took part in the debate upon them in the House of Lords, on 11th May last. These objections may be summarised:—

- a.* That to carry out the War Office proposal the Marine Forces would have to be increased by 5,000 to 10,000 men.
- b.* That stationing Marines at such places as Sierra Leone would result in H.M. ships becoming sanatoriums.
- c.* That there would have to be such constant interchange of Marines between ships and shore as would seriously injure the efficiency of the ships.

Now the objection under the head of *b* does not apply to Hong-Kong and Wei-hai-Wei, and, therefore, that under the head of *c* is of importance only in respect of changes necessitated by causes other than climatic.

To what extent changes between Marines afloat and Marines on shore would really be necessary is a matter for careful examination and actual proof. It is a simple question concerning the efficiency of Marines for service at sea as affected by duration of time spent on shore. It has not been found necessary to embark Marines quartered at Ascension and Bermuda in ships on the station in order to preserve their sea efficiency. It is possibly open to very grave question whether arguments adverse to quartering Marines on shore at Hong-Kong and Wei-hai-Wei, if admitted, do not with ten-fold force apply to the present system of keeping 4,200 bluejackets more or less permanently on shore in the coast-guard. If my information is correct, it is not improbable that it would be found on examination that in all sorts of billets on shore, and in harbour craft at home ports, there are a very considerable number of bluejackets who see very little blue water—seldom going to sea. If this be so, and it is not thought necessary to be constantly embarking them in the Channel Squadron to keep up their sea efficiency, it can hardly be contended that the efficiency of

ships in the China station would be impaired by the necessity for constant changes between Marines afloat and Marines on shore at Hong-Kong and Wei-hai-Wei, or ships on other stations injuriously affected by the interchange of the nucleus furnished as instructional staff to Colonial Governments at the training schools of the colonial naval auxiliary force in Canada and Australasia.

This assumed necessity for constant interchange of Marines between shore and ship, if Marines garrisoned Hong-Kong and Wei-hai-Wei, demands, I think, more careful consideration than it seems to have received. It would be a matter of administrative arrangement to secure that Marines employed in such garrison duty were seasoned men who had served some years at sea. Under such circumstances, and taking into consideration the voyage out and home, and the limitation of three years' service in garrison abroad, it is difficult to see substantial grounds for assuming that changes from shore to ship, and *vice versa*, would necessarily be so constant as is suggested.

Sir James Graham stated to the Manning Commission that the Marines as a reserve should be increased to "20,000 men, and never in peace reduced."

He stated (Q. 710) that "they ought to have all the experience of seamen," that "they ought to be worked round at sea," that the Board of Admiralty "ought to work them round," and that they should perform "all the duties of Marines afloat in rotation," and (Q. 711) that "they should be withdrawn from the shore and sent afloat so that by roster, *which might easily be arranged*, they should all be worked round in five years." That was the opinion of a statesman twice First Lord of the Admiralty, speaking with complete knowledge of administrative difficulties, and undoubtedly and rightly guided by the best naval opinion of the day. Tables "A" and "B" show what conditions prevailed when so great an authority pronounced so strong an opinion that our administrative system could "*easily be arranged*" to provide for 20,000 Marines being kept thoroughly efficient for service afloat in full-rigged ships. The total Executive branch, for example, of the Navy at the time, exclusive of boys, was under 25,000; it is now over 40,000. As these figures indicate a corresponding increase of facilities afforded by the fleet in commission for working Marines round in rotation at sea, it is not easy to recognise the force of assertions that the administrative difficulties are now too great to admit of keeping a force of 25,000 Marines efficient for service in mastless armoured ships without such constant changes in ships' complements as would impair the efficiency of the ships.

But questions of administrative arrangement are subordinate to the question of policy, and, therefore, objections embraced under the head *a* really govern the whole case.

It is somewhat singular that no ex-First Lord who took part in the debate on 11th May directly referred to the fundamental question of the ratio of marines to bluejackets. Lord Spencer did refer to the fact that "in old times it was always the practice that Marines should serve half their time on land," observing the practice had been somewhat modified now. The result of abandonment of what was a principle of national policy that Marines should spend half their time on land, was made very plain by Lord Goschen's impressive and repeated appeal to the House to remember that "we have not got a single Marine to spare." Unless my observation and sources of information are defective, the modern system of keeping the Marine ratio down, thus precluding Marines from spending half their service on land, has diminished the popularity of the Service and led to very many refusals to re-engage. My contention is that modern conditions tend rather to diminish than increase the proportion of service afloat necessary to assure the efficiency at sea of a Marine unit. That, however, is a matter of personal opinion which I do not presume to press. But it can hardly be disputed that increasing the Marine forces to such an extent as would restore to the Marine half his time on land has the most ample justification in past policy and experience in days of sailing-ships. The general objection, therefore, apparent in all the speeches of the ex-First Lords to an increase of the Marines for the purpose of garrisons in peace must be qualified by reference to the ratio of Marines to bluejackets. Certain subsidiary and specific reasons against an increase of Marines were however urged. The chief of these was that the Marines being a *corps d'élite*, "cannot be multiplied and augmented indefinitely," and that if even 8,000 men were added to the present strength, the probability is the standard would have to be lowered and "the same number of fine men would not come forward." Possibly that may be true, but the reasons which made the size of Marines a matter of importance have all disappeared. In days of scratch crews of non-continuous service men, big Marines afloat were as necessary as big policemen on shore, and when ships and guns were worked by manual labour, tall, powerful men were required. All these requirements are passed and gone, and the size of Marines has now no bearing on the question of their efficiency for sea service. The superior size of the men of the Chinese ships as compared with that of the Japanese had no influence whatever at the battle of Yalu. I submit that the days are past for allowing the ratio of marines to bluejackets to be determined by reference to parade appearance. Another objection for using Marines as detached garrisons abroad is, however, of more serious importance. It is right to state it as put by Lord Goschen to the House of Lords:—

"Under the change of system which is proposed they would have three kinds of service: service on board ship, service at Singapore or

some distant station, and service at home—out of which of the other two do you propose to take the necessary time for garrison work? Are the men who are to be put into the garrisons to have shorter sea service because part of their time is to be spent in those garrisons, or are they to have less time at home? If they are to have less time at home, you remove one of the popular elements of the Service; and if they are to have shorter time at sea, you diminish their efficiency at sea, which is one of the strong points we have to consider."

Now if the garrisons of Hong-Kong and Wei-hai-Wei were taken over by the Navy and garrisoned by Marines, 5,000 being added to the establishment for that purpose, the period of service at home of Marines would not be less, it would remain the same. There would be, say, 2,500 more Marines in garrison on the China station, and say 2,500 Marines more at home. The point, therefore, of this objection, is limited to the question of the period of service at sea. The additional 2,500 Marines at home would not be "ear-marked" as relief for garrison duty abroad. They would form part of the total establishment of Marines at home available for general service afloat or ashore as required, and when required elsewhere. The increased number at home would thus give greater scope to administrative arrangements for regulating and equalising sea and shore service of individual Marines. Taking the figures on this year's Estimates of Marines afloat and ashore and adding the 5,000 for purposes described, the distribution would be as follows:—

Afloat - - - - -	11,806	
Garrison, Hong-Kong, and Wei-hai-Wei	2,500	
	<hr/>	14,306
At home on shore - - - - -		10,284
		<hr/>
Total - - - - -		24,590

So, leaving out of account the detachment of Marines now at Ascension, Bermuda, and Wei-hai-Wei, the distribution, as between shore and ship at home and abroad, would be as follows:—

Afloat, at home and abroad - - -	11,806
On shore - - - - -	12,784
	<hr/>
Total - - - - -	24,590

If from the force on shore not merely recruits at home be deducted, but also the number necessarily employed in administration and instruction, etc., the total number of Marines on shore available for general service would just about equal the number afloat.

I must here repeat that the Royal Commission of 1858 fixed 11,000 as the number of Marines proposed to keep in reserve on shore, since which date the total *personnel* of the Fleet has about doubled, while the number of Marines on shore provided for in current Estimates is but

7,784. The objection therefore, so far as garrisons for Hong-Kong and Wei-hai-Wei are concerned, does not on examination seem to be of any real weight in respect of diminishing Marines' "efficiency at sea."

The effect on recruiting was only incidentally referred to in the debate. It is, I venture to think, the most serious of all the aspects from which the question can be viewed. Lord Northbrook observed that the "knowledge that Marines would in future be employed to garrison stations abroad," might create a serious difficulty in raising the number. That is a matter for very grave consideration, and it is because the effect on recruiting must be more or less a matter of conjecture that the policy if adopted of substituting Marine for Army garrisons must be very cautiously and gradually applied. In the first place, the present average "spell" of a Marine's service abroad—about three years—must not be extended during peace; and, in the second place, he must be as well off in garrison on shore abroad as he would be in a ship. Under such conditions there is no ground for asserting that ill-effects must be produced upon recruiting.

If service in garrison on shore at Hong-Kong and Wei-hai-Wei and employment as instruction staff at ports in Australasia and Canada offered opportunities of extra pay to the Marine when nearing the end of his service, the popularity of the Service would rather be increased than diminished. I understand that there is competition in the ranks of Marines to get stationed on shore at Ascension and Bermuda because of extra pay given for work done for the Naval Service at those places. I presume, of course, giving extra pay is a beneficial one for the State, which gets its full equivalent for the extra expenditure. I suggest that what is good for the State and beneficial to Marines at Ascension and Bermuda would be equally good at Hong-Kong and Wei-hai-Wei. I presume also that the Government of Canada and Australasia would give special allowances to non-commissioned officers and men forming the small instruction staffs at the various centres of training of their Naval Auxiliary Forces. Taking, therefore, my proposals as a whole, new and extended opportunities would thus accrue to Marines of obtaining personal benefits tending to popularise the Service.

I would not advocate placing Marine garrisons at Hong-Kong and Wei-hai-Wei to stagnate in the dull routine of military life like the garrison artillery or line, but utilise these "handy men," as at Ascension and Bermuda, for naval purposes generally, thus enabling them to earn extra pay, according to qualification and ability. If Marines spent half their time on shore, as formerly, more facilities could be afforded them for learning a trade and qualifying for remunerative employment when in garrison at a naval base. In my view, the whole question as to how far garrisoning Hong-Kong and Wei hai Wei would affect the popularity and

recruiting of the Marine forces would entirely depend upon how the system was worked. It is, I think, quite possible that instead of being adverse to popularity, it might prove to be the reverse. The best possible recruiting agent for the Marine Service is the man who entered the Service in his "teens," has seen much of the world, made his "little pile" of savings, and secured his pension to become at 41 or 42 an object of envy to the civil community to which he returns.

15. The foregoing will, I trust, sufficiently indicate the broad outlines of policy which appear to me to be best suited to the naval requirements of the Empire. I have endeavoured to examine all the objections which I have seen urged against the employment of Marine forces on shore at naval bases abroad. It will be observed that my advocacy of the immediate application of this policy is confined, for reasons stated, to the China station. Its extension must be a gradual process of development guided by experience gained in working the system on a small scale.

The native troops at Hong-Kong and Wei-hai-Wei would necessarily form a local auxiliary attached to the Marine force for the performance of such guard and other duties as might be desirable, the only questions involved in the transfer from the control of the War Office to the Admiralty being those relating to pay, clothing, etc. Possibly it might be found that the native units could to some extent also be usefully employed, to their own personal advantage as well as to the Naval Service, at trades and industries contributing to the requirements of the Fleet and the self-sustaining power of its base.

16. Though this Memorandum deals exclusively with the *personnel*, I desire to again call attention to the extreme importance of unification, as far as is possible, of armaments, mountings, ammunition, and stores supplied to the garrison at a naval base abroad with those of the Fleet. I specifically dealt with that aspect of the question in a letter to His Grace the Duke of Devonshire, K.G., as President of the Defence Committee of the Cabinet, dated 9th December, 1897, and subsequently published.

But it is proper here to note the obvious advantage of interchangeability of armaments, mountings, etc., in relation to the *personnel* at the base whether viewed as a reserve for the Fleet or as artisans and mechanics employed in maintenance and repairs. The progress of mechanical science applied to naval warfare is concurrently increasing the necessity for not merely repairing plant but also of skilled labour at naval bases. This affects the question of policy in respect of the *personnel* on our distant naval stations. Only time and opportunity are needed to render it possible to combine to some extent, the qualification necessary for the artisan with the function of a combatant and efficient Marine. More time and better opportunities would be afforded Marines to become

in their second period of service tradesmen and artisans, if the policy of distribution here advocated were adopted.

17. I venture to think that too much stress cannot be laid upon discipline as the main necessity for a reserve for the service of the Fleet. Outside the Engineer Department the number of highly and specially trained men required in a modern ship is small in comparison with the number of men absorbed by duties for the efficient performance of which long and elaborate technical training is not necessary.

Discipline, sea legs, and average intelligence are for such duties the only indispensable qualifications. I share the late Mr. Lindsay's opinion as to the sea legs of Marines, while their discipline and trained intelligence are proverbial. For these reasons it is difficult to understand the modern policy which has diminished the ratio of Marines to bluejackets.

The restoration of the old standard would render it necessary to keep more Marines on shore in reserve for the Fleet, and I submit that the establishment of Marine garrisons under Admiralty control in substitution for Army garrisons under the War Office at Hong-Kong and Wei-hai-Wei, would, with a colonial reserve ready to replace and reinforce them, offer advantages deserving the most serious and careful consideration of the Admiralty.

The key to the whole problem is really the question of reserves for their release from shore to sea duties in war.

On the general question of reserves for the service of the Fleet, I would, in conclusion, express my belief that under modern conditions a Marine who has at sometime served three or four years in war-ships, and has, both afloat and in garrison, always been under strict discipline, is a more valuable unit for service in a battle-ship or cruiser than a man taken fresh from a merchant steamer, a steam trawler, or drifter, even though he may have had a smattering of gun drill and a few weeks' experience of what a ship of war is.

These are some of the purely naval aspects of the question. The more general features will be found in the Appendix. They are for your discussion, but time forbids further reference to them.

In conclusion, I will, however, make one general observation. It appears to me that our commercial and economic position, wholly dependent as it is upon sea security, is now such that it cannot endure prolonged abnormal strain. The prompt and decisive assertion of naval power on the outbreak of war seems to me the essential paramount condition of our economic survival. I feel more concerned therefore in arrangements to enable our admirals to deal quickly and effectively on their several stations with the ships of the enemy, wherever found, than

in army corps to sit down and wait behind hedges in Sussex, or in hop gardens in Kent, on the "off-chance" of being some use when the British economic position is in ruins—because our naval means have been found insufficient, and the organisation of our naval stations has been proved by war to be incomplete.

APPENDIX.

Letter to His Grace the Duke of Devonshire, K.G.

(President of the Defence Committee of the Cabinet), dated 9th December, 1897.

"My Lord Duke,—I venture to officially address your Grace, as President of the Defence Committee of the Cabinet, on the subject of garrisons at our naval bases and coaling stations abroad.

I do so because they absorb a considerable portion of our Army, and in considering this question both naval and military issues are involved beyond the function of either the Admiralty or the War Office to determine; while evidence is not wanting to convince me that these two Departments do not, and are not likely to, agree upon what is really a broad question of policy. Some practical experience of the internal working of our naval and of our military systems, and a careful study of the conditions and requirements of the Empire as a whole, combined long ago to force upon me the strong conviction that economy and efficiency are not best secured by the existing dual system of organisation on our naval stations abroad.

That system, as your Grace is fully aware, is this:—The Admiralty is responsible and has to provide for the security of the water area; while the War Office is responsible and has to provide for the security of the port, which constitutes the naval base of that area.

I am not, and I have never been, influenced by the argument used by some, that as foreign maritime nations place all their naval bases under naval authority, our system of placing them under military control is wrong. I have always contended, as regards principles of British defence, that the example of foreign nations is wholly worthless as a guide. The geographical facts of our Empire, its necessarily complex political character, and the spirit of our people, create requirements and conditions which have no parallel. The efficiency and economy of British defence depend absolutely upon the adaptation of our war-power to the necessities created by those three things.

If, in re-organising our Army some twenty-seven years ago, more attention had been paid to geographical and other facts which must control our policy, and less regard to the example of a particular foreign nation, that re-organisation would not have been accompanied by a sweeping reduction of the Fleet, combined with a total disregard of the

requirements of distant naval bases; and we should not now have to acknowledge our military system is "over-strained and out of gear," due to various causes, and to no inconsiderable extent to the demand of naval bases and coaling stations abroad.

The present excess of Line battalions abroad over Line battalions at home has upset a military system founded upon the assumption that in peace the number abroad and at home could be maintained on a basis of equality. The experience of intervening years clearly shows that in our Empire a fixed distribution of field forces abroad is impossible, and the main conditions to be satisfied even in general peace by the organisation of our field forces are—elasticity and mobility.

By appropriating Line battalions to garrisoning naval bases abroad, I submit that we are to that extent depriving the Line to a corresponding degree of mobility, and our military arrangements of elasticity; and further, a Line battalion, being organised and trained as a unit for field service, is misapplied by thus locking it up as a sedentary force behind works.

On these broad grounds there is at least strong justification for contending that infantry required for naval bases and coaling stations abroad should not be furnished by the Line. To avoid misconception, I would here observe that my contention does not extend beyond provision for the local necessities of a naval base, which can only be approached by sea. I do not mean to suggest that all troops of the Line can, or ought to be, everywhere withdrawn from naval bases. Malta, for example, is a naval base, but it is also a *place d'armes*, or advanced military outpost. My proposal is strictly limited to meeting the requirements of local protection of ports abroad on which the fleets rely from a possible raiding attack from the sea. It does not apply to our great naval arsenals at ports at home.

But the contemplation of this question cannot be limited to the infantry of the Line. There are broad questions of general policy which appear to me to point to the desirability of transferring from the War Office to the Admiralty the arrangements for the local protection of naval bases abroad.

The Admiralty is now, and ever must be, responsible for securing freedom of water transit to and from, at and around, the port constituting a naval base. That Department is, therefore, responsible, and ever must be responsible, that the garrisons provided for the security of these bases can at all times obtain the provisions, stores, and munitions of war necessary to make and to keep the garrisons effective. Failure on the part of the Admiralty to do this would be also failure of ability to provide and store at the naval base coals for the Fleet, which means the extinction of the utility of the port as a coaling station. If, therefore, the Admiralty

cannot escape the responsibility of maintaining the communications of the garrison, it may well be asked, On what strategical considerations can the assertion be founded, that the provision of the men for such garrisons lies outside the province of the Admiralty ?

The defence of a naval base, which must be a port, involves the protection of an area around that port, because the essence of the value of protection lies in free ingress and egress for us, and the denial of any access to an enemy. Under conditions of an enemy controlling the offing, the port itself, no matter how strongly secured by local means, ceases to fulfil that function which is essential to its strategical value. It cannot be contended that it is the duty of the War Office to keep the offings of naval bases clear, though the result of the confusion caused by the existing system is shown in the growth of marine and submarine expenditure in the Army Estimates to enable a branch of the Army—the Royal Engineers—to learn and to perform aquatic duties. Of the nature, possibilities, and probabilities of attack on a port by sea, I fearlessly state my conviction, which is but common sense, that naval officers are far better judges than Army experts—even Royal Engineers. I go further, and state my belief that if the Admiralty and not the War Office had been responsible, and been required to pay for the local defences of naval bases abroad, those defences would not have assumed the proportions they have attained. There is no check on expenditure by any Department so effective as having to pay the bill for satisfying its own requirements. The enormous expenditure on local defences of naval bases has been too often incurred by the War Office under purely military advice based upon theoretical military assumptions of naval facts, rather than upon naval evidence founded upon practical knowledge and experience. Further, the development of torpedo warfare is distinctly causing the local defence to depend more and more on aquatic than on territorial means of defence.

If then the Admiralty must be responsible for the protection of the offing outside a naval base, and must be responsible for the conduct of supplies and munitions to the garrison inside the port ; and if it be true that naval opinions ought to decide the nature and extent of the local protection needed to secure the naval base from attack from the sea ; and, further, if the character of port defence is necessarily becoming more aquatic than territorial, it is difficult to find any substantial ground for contending that the *personnel* at the base must be provided by the War Office.

There is, however, one other consideration material to the issue ; it relates to the pattern and nature of warlike stores.

The advantages of one and the same Department supplying both the fleet on a distant station and the garrison at its base are so obvious, that I need not dwell upon the point. Of course there are, and probably

always will be, certain munitions of war applicable to ships' use, and not applicable to shore use, and *vice versa*; but ordnance and small arms, and consequently the ammunition adapted for use afloat, can equally be used on land for repelling attack from the sea. The importance of unification, as far as is practicable, of ordnance, small arms, ammunition, and stores for the service of a naval station afloat and ashore is evident. This desirable object, so far as is practicable, is more likely to be accomplished by placing the responsibility of supply on one department than dividing it between two.

As regards the *personnel*, I hardly think it can be seriously denied that a long period of six or seven years' garrison duty, under the average climatic and other conditions of naval bases, is not conducive to the popularity of the Army. The deadly dull routine of duties without variation, perhaps without change of scene, probably in an enervating climate, do not furnish the discharged soldier with many arguments in favour of enlistment by his friends. So long as these garrisons are provided by the Army, so long must this be the case; and in considering how to make the Army more attractive to the young manhood of the nation, the above consideration cannot be wholly ignored.

Having thus briefly indicated some of the more apparent disadvantages of the existing system, it remains to point out some of the advantages which the transfer of those garrisons from the War Office to the Admiralty appears to offer.

The garrisons would be furnished by the Royal Marine forces—artillery and infantry; in process of time a small corps of Marine Engineers might possibly have to be added.

The transfer of the duty from the Army to the Marines must be made gradually, and I wish to say I am advocating a principle of Imperial policy which will take time for complete development. I am not proposing a sudden and sweeping change in arrangements all over the world. I, however, strongly urge that no undue time should be lost in the practical application of the policy to at least one or two naval stations, and I suggest the China station, with its base Hong-Kong, should be the first station selected, because it is the most distant, and the transport of troops the most costly, while ever-increasing foreign naval developments in the Far East impress me with the conviction that beyond the Mediterranean there is no water area abroad demanding more completeness of organisation and power of rapid expansion of our naval means than that comprised within the China naval station.

I should here mention that the Imperial garrison at the naval base of the Pacific station, Esquimalt, is now furnished by the Royal Marine Artillery—it is paid for by the Dominion of Canada. But the absurd arrangement prevails of placing this force under the command of the

General Commanding at Halifax, on the Atlantic, over 3,000 miles away!¹ This illustrates the result of the dual control of Admiralty and War Office in dealing with our naval stations abroad.

I need hardly say the transfer of the garrisons from the Army to Marine forces involves an increase of those forces, corresponding to the Army garrisons relieved and to the home reliefs necessary for such garrisons, but it does not involve an equally costly Marine staff in substitution for a costly Army staff, because the organisation and system of the Marine forces do not necessitate that elaborate array of "cocked hats" which, under the Army system, seems to be inevitable even in a small garrison such as Hong-Kong.

There is no difficulty in recruiting the Marine forces, and the necessary additional number of men required could be obtained much quicker than a corresponding number of recruits for the Army. But it takes longer to make Royal Marine Artillery or Infantry effective as Marines, than to train Royal Artillery or Line soldiers. It is vital to the value of the proposed change that Marines shall not cease to be Marines. They must have, in addition to their military training, sufficient sea training to make them efficient as Marines. Once so trained, they are available for duty either ashore or afloat.

I allude to the relative time occupied in training, because I desire to guard myself from misconception. The number of Marine forces at this moment is not sufficient to supply the Fleet. Such is the pressure on these forces for sea service just now, that the individual Marine is deprived of his usual proportion of land service at home.

For example :—

In 1867-68 there were 800 more Marines afloat than ashore.

In 1877-78 the number was equal ashore and afloat.

In 1887-88 there were 970 more marines on shore than afloat.

But in 1897-98 there were 1,877 more marines afloat than ashore.

Exceptional temporary pressure due to rapid expansion of the Fleet is the Admiralty explanation of the altered conditions of Marine service. But the Navy Estimates of those years disclose a change of policy in the constitution of the *personnel* of the Fleet. In 1867-68, 24·11 per cent. of the total *personnel* of our naval force was Marine; that proportion has steadily declined down to this year, when the Marines are but 16·61 per cent. of the total *personnel*. To some extent this may be accounted for by the constant increase of engine-room staff. The decline of proportion of Marines to the total force is the more remarkable, when it is remembered that these thirty years cover the period of transition from auxiliary steam propulsion to entirely mastless ships. At all events, I cannot

¹ This arrangement has since ceased and the R.M.A. withdrawn. Royal Garrison Artillery and Engineers now form the garrison.

forbear incidentally remarking that this serious diminution of service on shore at home, and corresponding increase of time spent afloat, has three serious aspects. In the first place, the perfection of a Marine's efficiency can only be maintained by allowing time enough when at headquarters for the revision of drills and re-subjection to military discipline under their own officers. That has been a fundamental principle of Admiralty policy for at least a century, but it is now being departed from. In the second place, if a Marine is to learn a trade, with advantage to the State and to himself, he must spend sufficient time at his own headquarters to enable him to do so. In the third place, I have substantial grounds for fearing that this new Admiralty policy will before long produce results which, from a national point of view, would be deplorable, viz., there will be disinclination of Marines on completion of twelve years' service to re-engage, and a marked diminution in the popularity of this great Service.

The fact that many years ago I discharged the responsible duties of gunnery lieutenant of a frigate—and was adjutant of the Royal Marine Artillery for over five years—makes me look with affectionate regard on the internal working of both the naval and marine systems, while, as a Member of Parliament, I am under these circumstances in the constant receipt of much information appertaining thereto, from a variety of sources, both naval and marine. This is my apology for apparent dogmatism in expressing so decided an opinion wholly adverse to the continuance of the present state of things as regards the relative proportion in numbers, and the consequent distribution of the Marine forces. It must not therefore be supposed that there exists a sufficient number of Marines to supply these garrisons at the moment. The efficiency of the Fleet cannot be subordinated to the requirements of garrisons.

The practical effect of substituting a Marine for an Army garrison at Hong-Kong, for example, would be this:—

One Line battalion would be brought home, reducing the disproportion between battalions abroad and at home; the Garrison Artillery would be brought home also for conversion to Field Artillery.

The numerical strength of the Marine forces on the China naval station would be increased by the number required to take over the military duties now discharged by the Army at Hong-Kong. The working of the system would be as follows:—

The Marines on shore would be individually interchangeable with those afloat on the station, just as Marine forces on shore at Portsmouth are interchangeable with Marine forces afloat in the Channel Fleet.

The period of service on the China station for Marines, whether afloat or ashore, would be as now—three years or thereabouts.

During those three years no Marine need continuously serve on shore. In order to keep up efficiency as a Marine, as well as to give the necessary relief of variety of duties and change of scene from the dull routine of garrison duty, service afloat and ashore (the true function of the Marine) would alternate as necessity and circumstances might require.

The stores, supplies, clothing, etc., for Marines in garrison and for Marines afloat would be identical, and to this limited extent the supply to the Fleet on the station and the garrison at its base would be at once unified.

As regards reliefs, it must be remembered that the Marine organisation is wholly different from that of the Army. Reliefs are not, as in the Army, carried out by battalions, companies, or any fixed unit of strength. The taking up of special transports for the purpose of changing the garrisons at Hong-Kong, though necessary in the case of the Army, would not be necessary in the case of the Marines. The same system as is now carried out for the periodic reliefs of ships' complements on the China station would apply to the Marine garrisons at Hong-Kong. I feel quite confident that it is more than probable that the substitution of Marine for Army garrisons would result in the reduction of the cost of transport.

The question whether the allocation of the duties of garrisoning naval bases abroad would, under the conditions I have briefly defined, render the Marine Service less attractive and consequently less popular, is of great gravity and importance. If the proposal was to turn that force into a Colonial Corps quartered for long periods abroad, there can be only one answer—it certainly would. That, however, as I have shown, is not my proposal, and the question whether the transfer of additional duties to an augmented Marine force in the manner described would diminish the attractions and popularity of that Service, can only be answered by a survey of the causes which induce a more mature, a bigger, and a better class of men to enter the Marines rather than the Army.

Now it is not the pay, for, as a matter of fact, the Infantry Marine serving on shore has stoppages made for rations which the Line soldier gets free.¹ It is only when the Marine is afloat that he gets free rations.

I think the true cause of the popularity of the Marine Service may be thus summarised :—

1. It is a permanent profession, which a man can leave under certain conditions if he wishes, but from which, if he remains, he retires on a substantial pension in early middle age.

This has been erased.

2. There is more variety in the Marine Service than in the Army—a very great attraction to youth.
3. He has, by the nature of the Service, a double chance of being engaged in actual fighting.
4. The periods of service abroad are short, though oft-repeated, and seldom exceed three-and-a-half years at a time.
5. When at home he is not knocked about from place to place, but has a fixed station.
6. He can marry young, and practically without restrictions imposed by the Service.
7. When married, he has a settled home, and his wife can retain her local connection and pursue avocations, such as dress-making, washing, etc., while her husband is abroad.
8. He himself, by reason of his fixed headquarters, can, and does as a rule, learn a trade.
9. His training and such trade as he may have acquired fit him for various employments in civil life when discharged.
10. He is never idle, but always usefully employed.

I submit that not one of these ten inducements would be interfered with under the system suggested. Possibly No. 2 would be rather increased than diminished.

It does not, therefore, appear that it can be fairly asserted that the popularity of the Marine Service would in the smallest degree be lessened by having to serve partly on shore as well as afloat on a naval station abroad.

I may here observe that even granting that at first some misconception of the precise nature of the variation in the nature of the future service of Marines when abroad might produce less readiness to enlist for the Marines, and the process of a rapid augmentation necessary be thereby retarded, the remedy would be to place the Marine when on shore on an equality with the soldier, by ceasing the stoppages for rations from his pay. In any case, if the pay of the soldier is to be directly or indirectly raised under contemplated Army reform, the Admiralty must take this step promptly, or recruiting for Marines will be most seriously affected. The disadvantage of the Marine as compared with the soldier as regards these stoppages is not, I have reason to believe, without an adverse effect on recruiting already.

I do not shut my eyes to the fact that augmentation of the Marine forces means also a proportionate increase of the non-effective vote for Marine pensions; but, on the other hand, it promises an immediate reduction of expenditure on these garrisons under the heads of staff and transport; and besides affords the probabilities of many public economies by the disappearance of duplication of hospitals and medical charges—one

naval, the other military—and the gradual unification, where practicable, of munitions and stores, and the simplification and consequent economy in the system of supply and pay departments.

It must also be noted that a man entering the Marines at eighteen is discharged to pension at thirty-nine. For five, if not for ten, years after he is pensioned he is, as a rule, physically quite fit for garrison duty. A reserve of Marine pensioners, liable for service in garrisons abroad in case of war, could be formed to provide for the reinforcement of those garrisoned, thus, when called out in war, leaving a corresponding number of the younger and serving Marines free for a real available reserve for the fleet on the stations.

It does not follow, therefore, that if the Marine forces were largely augmented in order to take over from the Army this garrison duty, the resulting increase of the Marine pension list could be properly regarded as a wholly non-effective charge. It would be to a large extent a charge for an effective available and real Marine reserve ready in war for garrison duty at the naval bases abroad. The men of the reserve would take up the same duties which they had been accustomed to in these garrisons without friction and without fuss.

Having now outlined weighty considerations relating to general policy, to the Army and to the Marine forces, I next approach the question from a purely naval point of view.

I dismiss any objections to the proposed change founded on the resulting increase of the total Naval Vote required by it. That question resolves itself into another: Would the change save the Army Vote more than it would add to the Navy Vote? If it would, then the nation would gain the difference; if it would not, then the change cannot be advocated on the grounds of a direct saving, but only on the ground of efficiency and indirect financial advantage. As regards the latter point, it is proper here to remark that if garrison service at naval bases abroad renders the Army less attractive to a good class of men, some extra expenditure, directly or indirectly, to counteract that adverse effect must reasonably be contemplated, if the same class of men is to be induced to enter the Army, if the Army is to continue liable to furnish garrisons at these places.

But the fighting efficiency of the Fleet must frankly be admitted to be paramount, and above all other considerations whatsoever. Now the only possible influence on the fighting efficiency of the Fleet which the proposed change could produce, is one relating to the efficiency for service afloat of the individual marine. The bluejacket remains wholly outside the question at issue. How, as a consequence of the change, the efficiency of each individual marine would be affected, if affected at all, is the real crux of this branch of inquiry.

If official naval opinion asserts that by alternating service ashore with service afloat, when abroad, the marine would in any degree deteriorate or would be a less effective unit of fighting strength in a ship, it may be well asked: Why should this be the effect abroad and not the effect at home, where it is the existing practice now, and has been for generations?

Again, an explanation of another fact may be properly required. Why is it that bluejackets in the coastguards quartered on shore for long periods, and only embarked for a few days or so each year, are officially regarded as continuously effective bluejackets, ready for service afloat? Why, in short, should a bluejacket, by being quartered ashore as a coastguardsman for long periods at home, and on rural stations mostly engaged in the cultivation of vegetables, not deteriorate in efficiency, and a marine by being quartered on shore abroad for short periods deteriorate in efficiency?

That is a question the Admiralty only can answer.

I cannot refrain from repeating that an appeal to history shows that our naval policy has always been, until recently, to keep Marines at least half their time on shore. That great seaman and naval administrator, Lord St. Vincent, with matchless naval experience of war, and at a time we were actually engaged in war by sea and by land all over the world, urged upon the Government of that day the importance of "making service afloat as marines a part of the duty of every regiment of the Line in rotation." I must point out that such a system applied then would in effect have constituted a vast multitude of Marines only trained as Marines by one embarkation for a short period. Those were days of pure seamanship, and of sailing-ships dependent entirely upon a complicated application of masses of skilled manual labour. Is it to be asserted that in days of mastless ships resembling great floating forts, and entirely worked by labour-saving machinery, Marines to be efficient as Marines require to be kept more constantly afloat now than then?

The origin of our Marine force dates from the time when seafaring men navigated, but soldiers fought our ships. During the last century it was England's policy to maintain the Marine force as a "nursery" for seamen, and the system was, as soon as the Marine during embarkation became fit, he was then discharged from the Marines and entered as a seaman. 160 years ago Admiral Vernon desired to enlarge and extend this method of recruiting seamen, and, like Lord St. Vincent, 63 years later, strongly advocated converting "most of our marching regiments into Marines," and supported that policy on these grounds and in these words: "If, as they become Seamen, they were permitted to be discharged as such, that would make a good nursery for breeding them."

The continuous service system applied to seamen only 45 years ago put the bluejacket in this respect on an equality with the Marine. It entirely equalised the opportunity for discipline and training in gunnery and other drills for bluejackets and Marines.

As illustrating the effect of this upon the Navy now, I may observe that when a ship is paid off, the seaman gunner returns to the Naval barracks at Whale Island, Portsmouth, to be retrained; while the Marine Artillery gunner returns to his barracks at Eastney, Portsmouth, to be retrained, and under the existing circumstances the Marine Artillery gunner may be sent again to sea sooner than his comrade the seaman gunner.

In short, the general result of only 45 years of equalising the conditions of the service for seamen and Marines, combined with the changes in naval architecture, exhibit already the following results:—

- a.* In mastless ships, a few seamen take soundings and steer the ship. None of the Marines do so.
- b.* The Marines do the sentry work of the ship, but the seamen do not, though trained to do so.
- c.* The boat service of the ship is performed by seamen, though boat-work is part of Marines' training.
- d.* Both seamen and Marines work the guns. So much for modern conditions afloat.
- e.* When a force from a ship is landed for active operations on shore, the seaman now does the identical duty of the Marine; but in the case of artillery work, the seamen gunners are landed for service of the guns, the Marine Artillery gunner—specially and highly-trained for this work—is landed without guns. It has frequently happened within the last few years that bodies of seamen—specially trained for fighting afloat—have been landed as if they were soldiers, while the Marines—specially trained for fighting on land—have been left behind on board the ship as if they were sailors.

Thus have the relations of seamen and marines changed. I have dwelt upon it, because in dealing with the problem of Imperial defence we must have regard to the probable requirements of the future, as well as to the wants of the immediate present. When considering the distribution and organisation of forces most suited to the present, we must look at the continuous stream of tendency as the only guide to the future, so that what is done in the present may not have to be undone a

little later. Now the broad conspicuous facts which lie on the surface of the stream of tendency indicating its force on the Navy are these:—

- f.* The security of ports only approachable by sea is, as before observed, becoming more a question of water than of land defence.
- g.* The bluejacket, even now, is really the marine of the past, brought up to date and dressed in modern seaman's clothes.
- h.* The Marine force is now a much more important factor in the economy of Imperial defence than our present policy seems to admit, seeing that science and necessity have brought the Marine up to the level of the seaman in ability to discharge practically all the duties of seamen in these days of mastless ships without detracting from his efficiency as a soldier.

I am therefore persuaded that the substitution of Marine for Army garrisons at naval bases abroad not only best meets the Imperial needs of the present, both from a Navy and an Army point of view, but would also best suit the requirements likely to prevail on our foreign stations in the future.

There is yet one other aspect of this question which I cannot pass in silence.

There are important naval bases abroad situated in self-governing Colonies. The Governments of these Colonies assume the responsibilities of providing for their adequate local defence. The arrangements for the local defence of these ports are all on a War Office or military pattern. For the necessary ordnance arms and munitions of war these Colonies rely on our home arsenals. For the safe delivery of all such supplies the Admiralty must ever be responsible. But if the principle of Marine rather than Army garrisons for naval bases abroad were adopted generally at places under the control of the Imperial Government, inconvenience and confusion might arise in war if Colonial Governments did not also alter their arrangements at the naval bases under their care. It may be fairly assumed they would do so, as it would be distinctly to their interests to assimilate their arrangements to ours to avoid possible inconvenience and confusion in war. The consequence of such a change might be far-reaching in ultimate effect. The military garrisons of Australian naval bases are never now brought into touch with the Regular soldiers of the Empire, but every ship visiting the ports carries its detachment of Marine forces of the Empire; and once the principle and practice were established of vesting in those forces the duties of protecting the naval bases, the Marines serving in the ships constantly coming and going would naturally form a connecting link tending to develop a closer connection

between the colonial garrisons with each other, and with the garrisons provided by the mother country. If each colonial garrison was furnished with a nucleus, as a training staff of the regular Marine forces periodically changed, and Colonial Governments could be induced to gradually adopt an organisation at these ports similar to that of our Marine forces, the foundation would be laid on which could gradually be built up an Imperial system of combination between all parts of the Empire for the defence of the whole, and adapted to meet the new conditions which science and machinery are forcing on the *personnel* of the Fleet.

But modern conditions which have altered the characteristics of the *personnel* in individual fighting-ships have a far wider influence and significance when the operations of war by groups of ships on distant seas come to be examined.

All history shows that naval operations on any scale on distant seas is not merely a question of the application of ships, but necessarily involves minor land operations for the complete assertion of naval power.

Enemy's ports sheltering elements of naval strength such as Alabamas must be either destroyed or taken and held; advanced bases for our squadrons may have to be established and maintained. Whether the distinction between the seaman and marine disappear altogether, under the pressure of sheer necessity, does not in the least modify the necessity of our being prepared to fulfil, on distant stations, the supplementary duties to which I refer. But what does affect that fulfilment is the broad fact that with modern ships the method of accomplishment has to be changed. In the last great war, ships could and did carry the force necessary to discharge the duties of minor land operations. War-ships now cannot do so, the machinery has reduced the space available for men to the minimum required to fight the ship. The Marines to-day form an integral portion of the fighting capacity of the ship, and cannot be spared from a fleet or squadron for purposes to which the Marines of the fleet were formerly applied. It therefore follows that if the force necessary for minor land operations here indicated cannot be produced by the ships on the naval station, it must be drawn from elsewhere. We must be prepared to place at the disposal of the admiral of the station in war, the amount of force required to discharge these supplementary duties necessary to the effective action of his fleet. If we are to look to the Army to provide for this necessity, it means scattering in war our Army in small bodies all over the globe, and the misapplication of what should be our available field force for great operations to purposes for which, in view of the requirements of India alone, it cannot be adapted without wholly destroying its efficiency. These considerations all point once more to reliance on the Marines

rather than on the Army for supplying that force necessary for the assertion of naval power on distant seas. The marine garrisons would be the training schools for such local forces as it might be possible to raise, and the chance of a trip round the stations in a war-ship at the public expense to a local Militiaman or Volunteer at the base might not only prove attractive, but would complete his training as a Marine, thus greatly adding to the sources of naval strength.

In contemplating the operations of a great war, it is impossible to view the great ocean at the other side of the world, and the great naval development of foreign nations with coast and ports in that area, without grave doubts as to the wisdom of the policy we are pursuing in placing such complete reliance on the ability of the mother country, situated in another hemisphere, to provide in time, when war does come, all the forces and supplies necessary to raise British strength from a peace to a war footing in that great area, which includes, for example, Hong-Kong, Esquimalt, King George's Sound, and Sydney. Given these naval bases locally secured from raiding attacks, the efficiency of British war power will be not merely the freedom and sufficiency of the fleet, but the mobility and sufficiency of force for minor land operations at the disposal of the admirals on the naval stations included in that area.

Now, as I have already pointed out, the small garrison at Esquimalt is furnished by the Royal Marine Artillery, and that garrison is a nucleus on which the Canadian local force in that district rests. The close association, if given free play, of these local forces with the Marine Artillery, the officers and men of which are periodically changed, must produce comradeship and close ties, due to association in the discharge of local duties between the officers and men of the Marine Artillery and those of the Canadian local force in that district. Were such a system inaugurated also at Sydney, King George's Sound, and other Australian bases, a step of great importance would be taken. As the population increased, so will this mutual relationship extend, and so also will the probability increase of gradually gathering in the fragments, as they offer, of colonial support to the Marine Artillery, until in the fulness of time and by a natural progress the Empire will possess a force Imperial in its constitution and adapted and available for the general service of the Empire, wherever naval operations require its application for the assertion of that which is as essential to our Colonies as to the mother country—sea security.

I notice that representations have been made to the Admiralty to enrol colonial seamen and fishermen in the Royal Naval Reserve. Anything that tends to draw into the Imperial Service our fellow-subjects in the Colonies ought to be encouraged. But in view of this complex con-

siderations involved, to which I have referred, and having regard to the marked tendency of modern conditions to obliterate distinctions between the bluejacket and marine, it is certainly open to question whether a Colonial Marine Reserve, rather than a purely Naval Reserve, would not be best adapted to the Imperial requirements of the immediate future.

Looking at the Empire as one great composite whole, and reviewing our naval military requirements in all their various ramifications, and having regard to the effect upon the *personnel* of Navies produced by the achievements of science and the application of machinery, the vast problem of British defence naturally resolves itself into three factors applicable to general service, viz. :—

1. A sufficient fleet.
2. A sufficient mobile amphibious force auxiliary to the Navy, adapted to the minor military operations of maritime war, as well as to the local defence of distant naval bases.
3. A sufficient army for field service, and available for that service whenever and wherever required.

The mobility of the Army as a great organised field force is fundamental to its efficiency, and depends upon its release from any obligations imposed by naval wants. The transfer of the garrisons in question from the Army in peace to the Marine forces would relieve the Army in peace and war to that extent ; but it would not of itself exempt the Army in war from naval demands on distant seas for bodies of troops varying in strength and composition to suit the peculiar conditions of minor coast operations incidental to maritime war.

In order to free the Army altogether from any such liabilities in war, I submit that the several Marine headquarters—which are great training schools—should be utilised also for the raising and training of a Marine Militia Reserve, recruited in the surrounding areas. The organisation of such a force should not be by regiments, but exactly follow the Marine system, thus adding a Militia Reserve wing to each Marine division. The force must be liable to general service when called out in war ; if not it would be worthless as a reserve necessary to expand, to adequate proportions, our Marine force on distant naval stations placed at their bases, and ready for the discharge of all minor military operations incidental to maritime war.

I cannot see any difficulty in raising such a force on precisely the same terms as the Army Militia Reserve, which is always up to its established strength. That Army Militia Reserve, as Your Grace knows, is composed of Militiamen who, for a small extra payment, engage to hold themselves ready, when called upon in war, to leave their Militia regiments and join any regiment or any corps of our Regular Army anywhere. So long as Marine Service is more attractive than Army

Service to the recruit, so long is it likely a Marine Militia Reserve would be even more popular than the existing Army Militia Reserve, and it would not be open to the objection that on the outbreak of war Militia regiments would, by the calling out of this reserve, be denuded of their best soldiers, for the Marine Militia Reserve would not be fragments of regiments, but be a Militia wing of each Marine division.

Looking below the surface, inducements to join a Marine Militia Reserve would be far greater than those which now keep the establishment of the Army Militia Reserve up to its full strength. The Army Militia Reserveman has to contemplate that when called upon for general service he must separate from his comrades, sever all his connections, locally and regimentally, and join a strange regiment or a strange corps, thus becoming a stranger among strangers. A Marine Militia Reserveman when called out for general service would find himself in company with those with whom he has been associated in annual drills and training, having the same headquarters, the same local connections, and the same corps traditions. My proposal, therefore, is simply this: That each divisional headquarters of the Marine Service should have a certain force of Militia attached to it, recruited in the neighbourhood, liable for general service in war, and annually trained in peace exactly as Marines are trained previous to embarkation for service afloat.

Now, grouping all the proposals relating to the Marine forces together, it will be seen that the main purpose their adoption would accomplish would be to restore to the Army its freedom and mobility as a field force. We have arrived at a military condition of things which has forced the Commander-in-Chief of the Army to publicly declare to a popular audience that "our Army machinery is no longer able to meet effectively the demands made upon it." It surely is opportune now to inquire, What are the demands that have produced this result? I think the true answer to any such inquiry must be—that they are mainly naval demands to meet which our Army is misapplied and ill-adapted.

But in restoring to the Army freedom from such demands, the naval power of the Empire must not in any way be diminished, either as regards the internal fighting efficiency of ships, or the external application of the fleet to the purpose for which it is maintained, or by depriving our fleets abroad of an auxiliary military force necessary during operations of maritime war.

Now the true function of Marine forces, as auxiliary to naval power, is to free the fleet from local ties, and to free the Army from being hampered by naval demands. Our policy seems to have lost sight of this fact altogether, and the Admiralty apparently have come to regard the Marine forces as merely a great collection of highly-trained and perfectly

disciplined men, individually able to do nearly all the duties and odd jobs the service of a ship requires, and at less cost than seamen. The Admiralty overlook the teachings of our last great war, and appear to have forgotten what the function of the Marine element, as an organised force, really is when viewed in the broad light of conditions which prevail in maritime war.

The policy of British defence has, since the close of our last great war, until very recently, been a policy of patchwork evolved by "fits and starts"—at one time purely naval, at another purely military, and without reference to the general perspective of Imperial defence—military proclivities and narrow professional interests determining the issue at one time; naval proclivities and narrow professional interests influencing it at another. In the struggle between these two great arms of war power the real use and application of a Marine force has been squeezed out of any serious national consideration. In the result, duties and responsibilities properly appertaining to the Navy and Naval administration have gradually been shifted to the Army and War Office administration, and the mobility of the Army has been sacrificed in the process.

It is not in the least surprising the Admiralty, as a department, should strongly resist the proposed change. Like every other department successful in avoiding responsibilities which properly belong to it, the Admiralty, as a department, will strongly object to assuming their discharge; but efficiency and economy of provision for Imperial defence cannot be subordinated to departmental desires.

Naval authorities who received their earliest impressions of the conditions and requirements of the Naval Service during a time when seamen were only engaged for a ship's commission, in the period antecedent to the Continuous Service Act, are not, as a rule, likely to regard the change proposed with favour.

That beneficent Act was passed in 1853, but it was not until 20 years later the full force and effect were felt. The high naval authorities of to-day, therefore, passed very many years of their early service under conditions which forced them to regard the Marines of a ship as a necessary security for discipline, because they were then the only men in the ship subject to continuous discipline, drill, and training. It is not unnatural that these naval authorities, whose one single aim is the welfare of the Naval Service, should be needlessly alarmed at the idea of applying any Marines to what they regard as an Army purpose, and which they fancy might, in some way or other, render Marines less available for the discharge of those duties which early and long experience taught them to regard as the sole reason for the existence and the maintenance of a Marine force. But Marines are no longer needed for purposes of a

ship's discipline; and, in any case, the proposed change would in no way whatever alter the complement or internal economy of a single war-ship.

It is necessary for me to point out that the proposal I submit relating to the Marine forces will be found, when closely examined, to be not a revolutionary change, but a simple development adapted to modern conditions of a principle freely applied when we were engaged in the long struggle for supremacy at sea, and that even by embracing in a wider organisation of our Marine forces strength and support from colonial populations, we should after all only be repeating what, for long periods, we did in the past.

I have the honour to be,

My Lord Duke,

Your Grace's obedient Servant,

JOHN C. R. COLOMB."

Colonel R. H. VETCH, C.B. (late R.E.):—The subject of the lecture to-day is really twofold: one is the question of naval reserves, upon which I do not feel competent to express an opinion of value: the other is whether the land defence of our naval bases and coaling stations should be undertaken by the Navy rather than, as at present, by the Army. Upon this subject I feel more confidence, and having had the subject of defence of naval bases and coaling stations under my consideration for years, in positions of responsibility in relation to them, I ask your indulgence while I offer a few remarks on the control of the defence of defended ports abroad. Just as the fashions in dress of a time long gone by come back as in a cycle, so these questions of the respective duties of the two Services are brought upon the *tapis* periodically, from a want, I venture to think, of attention to first principles. Fortunately, the Admiralty generally shows a sound grasp of principles, sounder than the War Office—and generally as a rule sticks to them. Nothing struck me so much during my term of office than the way in which the Admiralty stuck to principles. Whatever individual admirals might say, the Admiralty was quite another matter. Thus, when Sir William Jervois—so distinguished an authority upon defence—came home from New Zealand with the fad strong upon him to hand over the submarine mining of defended ports to the Navy, the Secretary of State for War, the late Mr. Stanhope, had a consultation committee and coquetted with the proposal, but the Board of Admiralty would have none of it. I admit that the spectacle of the whole Board of Admiralty under Lord Goschen voting unanimously that Wei-hai-Wei should be a naval base, and a later Board under Lord Selborne voting unanimously that it should not be, is somewhat perplexing, particularly as both votes were on purely strategical grounds; but at any rate the question was one of detail and not of principle, while the question raised by the lecturer is distinctly one of principle. Now, what is the principle involved in handing over the land defence of coaling stations to the Navy, a proposal, be it remembered, which was recently made by the head of the War Office, but very coldly received by his colleagues of the Admiralty. The principle is that the all-important duty of the Navy is to fight its ships—to find the enemy's fleets and destroy them. Anything which takes attention off this main duty, or in any way interferes with its performance, must at all hazards be prevented. While, on the other hand, everything possible must be done to free the Navy for the work of fighting the enemy's ships wherever they may be found. The Admiralty has,

therefore, in my humble opinion, rightly decided that it is not the duty of the Navy to take charge of land or fixed defences. The Navy is the first line of defence of the Empire, and it is the duty of the second line—the Army—to enable the first line to carry on its great and responsible work with the assurance that its bases and coaling stations are efficiently protected locally, and ready for use as occasion requires. The Navy is none too strong in *personnel* that it can play any pranks of the sort proposed by the lecturer. I sometimes think we hardly realise what a great naval war would mean. Every coastguardsman and every naval artilleryman would be wanted. To tie up any man in coaling stations who could be used on board ship would be impossible. And the gallant lecturer himself reduces his proposal to an absurdity by suggesting that the garrison, the guns, and the stores should form a sort of *dépôt* from which ships would supply deficiencies. I am afraid in vain is the net spread, and the Admiralty will not be caught by this too obvious decoy. I do not, although I might, suggest that the War Office is more capable than the Admiralty to take charge of land defences; but I do suggest that the Admiralty would rightly think of the ships first, and that the defences of ports would take a back seat were they under Admiralty control. The suggestion of the lecturer that Hong-Kong should be one of the stations to be handed over to the Navy does not seem a happy one, seeing that Hong-Kong has a back door, and it is quite conceivable that an enemy might land a force at the back of the island which would have to be met by a field force. I am quite sure the naval officer commanding would distinguish himself, as has so often been done with naval brigades on shore, but it does not commend itself as the most economical way of utilising him when a soldier is available. I do not myself see what the question of naval reserves has got to do with the question whether the control of the defended ports should rest with the Army or the Navy. The lecturer's aim seems to be to convert the coaling stations' garrisons into a naval reserve, which may or may not be a good thing for the Navy, but it cannot certainly be a good thing for the defence of the coaling station. By placing the men, guns, and stores at the disposal of an admiral to supply deficiencies on board ship, it seems to me that the defence of the port will sail away with the ships, and the coal will be left to take care of itself. One word more. The gallant lecturer in his letter to the Duke of Devonshire has again raised a bogey of enormous expenditure on fixed defences for coaling stations on the advice of soldiers and not of sailors. Having an intimate knowledge of the subject, I venture to assure him that he is mistaken. The expenditure is moderate, and the works upon which it has been laid out are the result of consultations between soldier and sailor experts, so that the existing defences are due quite as much to naval as to army opinion.

Rear-Admiral W. H. HENDERSON :—I think that the memorandum and letter are of an extremely high order, and show evidence of great ability. With the principles enunciated I am on the whole in general agreement; and as to the details, I have carefully looked over them and do not think Sir John Colomb is incorrect in one item. On one point of detail I would say that, both with bluejackets and marines, the question of making them contented and giving them a little better position in the later years of their service is one of the things we must keep in view. The reason why men leave the Service, the reason why a large proportion of marines are leaving at this present moment, is that for the ordinary private there is no further outlook. When he has finished his twelve years and goes on for another eight years there is not sufficient inducement to make it worth his while to remain. This question is one of Imperial policy, and our Imperial policy of defence, to my mind, is in a low state of organisation. Until we get a Council of Imperial Defence that will lead the way and give us light,

I think we stand a chance of failing if pitted against other nations. It is an organic question. As with all the higher organisms, Nature's laws must be followed, which are : central control, differentiation and specialisation of parts, and the nation that fails in these particulars when it meets a higher organisation is bound to go under in the struggle for existence. There is no control at the present moment over the Admiralty and the War Office in these matters of Imperial policy. They do their very best with the very highest motives, but naturally and instinctively they must work and fight for their own hands. Until some central control is established no scheme such as Sir John Colomb has brought forward has the slightest chance of standing. The Admiralty certainly—and I for one, if I were at the Admiralty—would not consent to imperil the existence of the Fleet by taking over the defence of the coaling stations, which would involve a large transfer of money from the Army to the Navy Estimates ; in the course of a few years this would be forgotten, and when questions of ways and means came up the Admiralty would be squeezed, and in the squeezing it would be not the coaling stations, but the Fleet, that would suffer. The keynote is struck in the first paragraph of the letter in the appendix to the paper. In that matter my notion is that naval opinion is ahead of military opinion. We have urged that the Army should not exhaust its power or its means in sedentary force ; that it should organise its means as an active Army for the purposes of offence and defence. I also think that unless this Council of Imperial Defence, which we hope may come some day, lays these factors to heart we shall reach a period of time fraught with great danger to the Empire and our racial aspirations. There are three factors laid down by the lecturer at the latter part of his letter which must govern our policy in the future. If we reach a higher state of organisation, it stands to reason that economy and efficiency must result. I stated in the theatre of the old Institution some fourteen or fifteen years ago that our main difficulty was want of organisation, and I believe that is our difficulty now. We are reaching year by year stages of greater complexity, and it is necessary for us to keep moving on, and necessary, first of all, to wake up. I have been always of opinion that the sea defence of a naval base should be in naval hands, in the hands of people who know what the attack is going to do, and the advent of the "submarine" emphasises this conclusion. I feel sure that the difficulties of a dual control are bound to lead to trouble. I have had some little experience of it ; with the very best of will, with an earnest endeavour to reach a decent conclusion, and to do what is right, I am certain that those difficulties are unavoidable. One other point : Supposing that the sea defences are not turned over to the Navy in any shape or form. I have always advocated—it is entirely a military point—that the sea defences of the big naval bases, primary or secondary, are properly the function of the local corps systematically organised for the purpose. It is especially the function of the Militia and Volunteers, the Volunteers in particular. The training that is required for the manning of sea forts is a local training requiring local knowledge. It is more regular and constant and surer and simpler than the training of an up-to-date field army. In conclusion, I hope and trust that in three months from now, at the coming conference with the Colonial Premiers, some steps will be taken which will put our Imperial policy of defence on a higher plane with a higher organisation than it has hitherto possessed.

Major ARTHUR HANDLEY, R.A. :—The main question that Sir John Colomb has brought before us this afternoon is not the one I wish to discuss. I think we can only congratulate ourselves that such a distinguished authority has thought fit to devote some of his time to the question of our coaling stations. As he has done so, I hope he

will pardon me if I make one or two remarks looked at from our point of view. I have a great deal of lecturing to do on this and kindred subjects, and I should not like to go away from here having listened to this lecture without making any remark. First of all, Sir John Colomb speaks of coaling stations as a part, I presume, of naval bases, that is, he takes them all together. I do not know whether Sir John Colomb *intends* to include naval bases, but if so, surely naval bases have more to do with the efficiency of the Navy than simply to supply it with coals and stores. A Navy requires something *more* in war than coals and stores, and a naval base assists in the security of the sea, because the Navy feels it has something to fall back upon in the event of any disaster. Another question I should like to ask is, Where should the admirals in command of naval bases be in the event of war? At present the world is divided into fleet stations; if these fleet stations are to remain, there will be a local naval commander-in-chief. Is he to remain at the naval base, as seems to me to be rather suggested in this paper, or is he to go with the fleet? If he goes with the fleet, say, with the China Fleet, and fights elsewhere, what is to happen to the local naval base in his absence? We have to think of that, and there should be somebody in *permanent* charge, and no "swapping of horses in the middle of the stream." Another point mentioned by Sir John Colomb is the lack of men at the admiral's disposal from which he could make good what may be called his "wastage," or could supply a certain number of men for what Sir John Colomb calls "inshore operations." But there are other special operations which may be considered, besides inshore operations, such as "seizing advanced bases": and I maintain that the admiral, at the present time, has these men in the garrison artillery. If the naval command is assured, there is no reason why the garrison artillery should be compelled to stay in a base when any attempt to attack that base is unlikely. Why should not the admiral, or the superior authority for the time being, take those garrison artillerymen away in transports, as well as any other men? It is true they may not have their sea legs, but they will probably soon find them, and to seize some of these advance bases, the soldier when you put him on shore would be just as suitable as the sailor. There is another point in regard to training which I should like to bring out. How are Colonials of the Dominion of Canada or the Commonwealth of Australia to be trained to take charge of these naval bases? As far as I understand the lecture, on the outbreak of war the permanent marine garrison is removed by the admiral to supply his wastage, and that marine garrison is replaced by Canadians or Australians brought over the seas. Anybody who has been in a coast fortress, or had to work in connection with coast defence, knows what difficulties there are, and I maintain that it would be very undesirable to bring men, however intelligent they may be, *after* the outbreak of war, and *before* the command of the sea was absolutely assured, to replace the permanent garrisons. Rear-Admiral Henderson has already pointed out the importance of the local man. You must live close to the forts to know all about them, for the armaments are exceedingly complicated and constantly changing. To increase the Marines, where are these extra 5,000 men to come from? It seems there are a great many ideas afloat as to what we should do with our Army and Navy. The principal idea is that they should be very largely increased. But how are they to be increased if the men will not come? If you are going to pay them extra or enlist them for a shorter time, they may, but we must wait and see. The only other remark I have to make is this, that when these garrisons are redistributed I hope Sir John will not take away from us all the Hong-Kongs and Wei-hai-Weis, and leave us the remainder.

Captain J. MARKHAM ROSE, R.M.A.:—I thought, perhaps, it might be of some advantage for an officer on the active list of Marine Artillery to say something on this

subject. With regard to the question of the proportion of marines ashore and the proportion afloat, it seems to me that since our great increase to the Fleet we have been going back in the matter of barrack training. By barrack training I do not mean infantry drill on the barrack square, but I mean naval gun drill and musketry. At the present time, when our men come back from their three years afloat, we only get them in barracks for too short a period to be able to put them through a complete course of naval gunnery, and to give them a thorough revising course of musketry, both of which things I think we can do more effectively ashore than can be done in the fleet. In our batteries ashore we have a large body of instructors and every kind of aiming target, and we have also gun-boats available for the men to do their firing at sea, so that we can put them through a really consistent course of gunnery which brings back to them the work they were taught as recruits, and fits them to go to a fresh ship and pick up their duties at a new gun which they probably had not seen in their previous embarkation, and fits them also, I think, more thoroughly for their life afloat as regards the gunnery side of it. I think the musketry is self-evident. You have no time in a fleet to thoroughly put the men through a course of musketry, and a soldier or seaman who cannot use his rifle is not at his highest value. Unless we have an increase over our present numbers it is impossible to put all the men through these revising courses. That is one reason, I think, why the country needs a higher reserve of marines—simply for their training. I do not mean in the least to depreciate the value of their sea-service, for it gives them their sea legs and the necessary training in gunnery and other matters for service afloat, but they get more of this than is necessary, while they do not get systematic courses of instruction. It would spoil the routine of the ship and the work of the fleet to give them, and if they cannot get their courses ashore I am sure the men suffer in efficiency. Why should we not have sea-service batteries in the coaling stations and a musketry staff to train the men whilst they are forming the garrisons of the stations? At the same time, the Colonials who live in the countries where the garrisons are situated may also, under the marine instructors, get some knowledge of gunnery. With regard to Major Handley's remarks, there are two sides, perhaps, of looking at some of these things. I have often heard it said that perhaps some slight weakness of the garrison gunner is not exactly knowing ships and all about ships, and the way that guns are fought on board ships—in fact, knowing little of the ordinary naval evolutions—and not knowing how to recognise the enemy's ships. I know that there are photographs and the men are trained in that work, but I think that the old marine who had spent a great deal of his time on board ship would be more likely to recognise the enemy that he had opposed to him than a garrison gunner who had never been on board ship or served in a ship. Although I know that the garrison gunners would serve with the admiral and go with him wherever he wanted them to go, yet I think the marine would have been of more value taken from the forts than the garrison gunner would. Major Handley claims that the garrison gunner would be of more use ashore than the sailor; but would not the marine from the forts be of more use in the ship than the soldier? I thought I understood from Sir John Colomb's scheme that the marine officer or the marine instructors would instruct the Colonial inhabitants of the garrison to actually man the forts, so that if part of the garrison were embarked, then the people who actually lived on the spot would replace them, having been accustomed in peace to the guns they would man in war. They could go to the forts any day they liked, and would be really more accustomed to them than garrison gunners who had been only just drafted out from England. In many stations there might not be enough Colonial inhabitants

to form large enough Volunteer corps to man the forts, and these places would require especial consideration.

Sir JOHN COLOMB, K.C.M.G., M.P., in reply, said :—Colonel Vetch, I think, has been largely answered by Rear-Admiral Henderson. Colonel Vetch spoke on the subject of the submarine defences, but I think he will find that the question goes further back than he mentioned. As a matter of fact, when the country at last woke up to the necessity of making some provision for the protection of coal and supplies at the naval bases abroad, the distinct intention of the Government was that it should be Admiralty work, but the Admiralty would not touch it, and therefore this matter has developed in its present form. I am well aware of what Colonel Vetch has said. These elaborate defences have been presumably constructed on the naval demand, but I cannot agree with him that that is so. It is quite true that a naval officer has been attached to the Fortification Department to be consulted by that Department.

Colonel VETCH :—I was alluding to the Joint Naval Military Committee.

Sir JOHN COLOMB :—I know, but I think you will agree with me that the defences are the plans of the Fortification Department of the War Office, and that there is one naval officer, a kind of consulting naval officer, allowed for a limited time by the Admiralty to the Department. They call him in occasionally on matters of detail, but he has nothing to do with the principles, which are laid down by the War Office. Then we have this Joint Committee to which Colonel Vetch referred. But if the War Office choose to spend money, the Admiralty are not the people to object. Why should they ? They have not to pay. The fortifications have grown and developed, and are growing and developing, and my contention is that if from the first the Admiralty had been responsible, you would only have had necessities provided for, and you would not have had the accumulation of difficulties and cost resulting from exaggerated military ideas of the naval power of attack. I am afraid my friend Colonel Vetch and I must be content to differ. I am glad to say that in one thing I entirely agree with him. He said that the business of the admiral and of the Navy is to find the enemy's ships and to destroy them. We are all absolutely agreed upon that. But my point is that I want to give the admirals on the distant naval stations the means of doing so when they have driven them into port, and have to destroy them by operations of a quasi-military nature. At present the admirals have no force at all available for that purpose. Major Handley said we had the garrison artillerymen. But just for a moment take these two points together. All the argument that you cannot rob the base of its men falls to the ground if it is to be assumed that the admiral can take the garrison artillery away now.

Major HANDLEY :—The admiral is the best man to decide when he can take them and when he can not.

Sir JOHN COLOMB :—But the admiral has now no voice at all in the matter. The officer commanding the base and his men are under the War Office in Pall Mall.

Major HANDLEY :—I entirely agree with that.

Sir JOHN COLOMB :—Then I am happy to find that Colonel Vetch and I agree on one point with Major Handley—or at all events Major Handley goes so far with me as to think that the naval base should be under the supreme authority of the admiral of the station.

Major HANDLEY :—Certainly.

Sir JOHN COLOMB:—When you agree to that, then it becomes a much more simple question to deal with. Where I apprehend the great danger lies is, that if we had an outbreak of war to-morrow you must expect vessels of various sorts, improvised for war, appearing on your stations. You will have them in a very short time. What the admiral of every station has to do is to get hold of and destroy those ships. At these distant stations those ships should be driven by superior force to take shelter somewhere, and the question for the admiral would be, having located the ship in a creek, port, or harbour, how to get at that ship. If he cannot use his own ships, it becomes a question of the application of force outside his ships in order to accomplish his purpose. At the present moment, no admiral of any station has any force at all at his disposal, except what is in the ships. Under the circumstances it is an awkward position for the admiral to have to risk the sacrifice of his complements, and perhaps render his ships ineffective for a time, in order to carry out an operation of that sort. Colonel Vetch said I was very unfortunate in my illustration with regard to Hong-Kong. Well, perhaps I am, but I have said I think this process must be applied carefully, and I have said also that, looking at the position of things on the China station, anybody who contemplates any change at all must fix his attention on that China station. If Hong-Kong is unfortunate, I am sorry for it; it is the fault of Hong-Kong, and not mine. But when my gallant friend says it is unfortunate because an enemy can land at the back of Hong-Kong, I want to know what the admiral would be doing. Are we to assume that our arrangements are such that the enemy can move troops about our naval stations? I cannot accept that, and, therefore, I do not take Hong-Kong as unfortunate. I maintain that we must be badly off, and our position on the China station must be in peril, if we are to contemplate foreign expeditions crossing the waters of the China station and landing at the back of Hong-Kong while our squadron is free. That is a position I refuse to assume. You must have the ships and the naval force to render that impossible. In that sense I say that these headquarters or bases are adjuncts to the exercise of our naval power. I now come to Admiral Henderson, and I entirely agree with him that it is to be sincerely hoped this Conference, which is to be held in July, will eventuate in some sort of Imperial Council that will give us continuity of policy on definite principles. We are oscillating between the Army and the Navy, and we are in absolute confusion. I entirely agree with my gallant friend when he says that the root of the whole matter is that the Empire is not organised on definite principles for war. I would also say I think, under the circumstances of our policy being now a sort of shuttlecock between the Admiralty and the War Office, that I can quite understand the Admiralty fearing very much to take any increased financial responsibility for expenditure connected with the shore. I do not shut my eyes to the danger of a transfer of cost from the Army to the Navy for some purposes; it has its danger. The danger is that when the cry comes for economy it would result in cutting down what is easier—the ships; and the Admiralty might be left with a diminution of power on sea, while compelled to retain the power on shore. I think the matter is one of principle, and I look for a Council for the purpose of attending to the interests of the Empire. Major Handley asked me a question which I confess I cannot understand; he asked me if we have this scheme, where is the admiral to be—is he to be at his base or is he to be with his fleet? I do not understand the question. What is the admiral for? The admiral is for the purpose of using the fleet to destroy the enemy's ships, and the admiral would be where he would be most wanted, and he certainly would not be wanted at the base for that purpose. The admiral will be wherever he is most required in order to use his forces effectively for the purpose of doing his chief and only business,

to destroy the enemy's ships. Therefore, I do not see how the question of where the admiral is to be is at all relevant.

Major HANDLEY :—If the admiral has supreme command and goes away in war-time, who is to look after the base ?

Sir JOHN COLOMB :—Why, the officer who is in command of the base.

Major HANDLEY :—Then you would not have the admiral in charge of the base.

Sir JOHN COLOMB :—I am not proposing to put the admiral in charge at the base, but the base under naval control, that is, under the admiral's. It seems that I have some difficulty in making this clear. Take a naval station. You have certain naval arrangements composed of ships to do the work of that naval station, and as an adjunct to the working of those ships you have a base and coaling station where supplies, coals, and means of repairs can be obtained. It is a matter of indifference who commands at the base so long as the admiral is satisfied that the force at the base is sufficient, and that the command is in the hands of a man he can trust.

Major HANDLEY :—That is all I want to know. I wanted to know whether you mean that the admiral should accompany his fleet or stay at the base and be responsible for it.

Sir JOHN COLOMB :—I cannot see that the question of where the admiral is to be has anything to do with the question of the arrangements at the base. I confine myself to saying that. Major Handley also asked me how Colonials are to be fitted and trained to garrison duty. Well, I do not see much difficulty about that. My proposition is that you should have the same class of instruction given everywhere, and I cannot see the difficulty of training a man to be efficient for garrison purposes at Sydney. Saying he will not be fit for work when he is transferred to Hong-Kong, I cannot understand. I agree with Captain Rose that the effect of reducing the ratio of marines to seamen involves certainly a deterioration in the training of the marines. That is unquestionable. They are not trained as well as they used to be, and that, I think, is unfortunate. But all those are subsidiary questions to my contention, and it illustrates what Admiral Henderson said that there is a want of organisation, that if war was to overtake us to-morrow every admiral would be looking to England to send him out what he wanted in the shape of force. He is not provided with means or with control, even where the means exist, on his station. He has no authority or control over the force at his base ; he has no reserves, only the actual complement of his ships, and he is expected on the outbreak of war to deal with the enemy's ships while the present organisation denies him adequate means of doing so. As I read naval history from the earliest times down to the last experience of the American and Japanese wars, I see plainly written on every page of it that in order to make naval power in these sort of minor operations on distant stations effective, the admiral does require to have adequate means and force at his own free and absolute disposal to apply how and where he likes, and without it I think we shall be in great danger. I consider that the organisation of our naval stations for war abroad is a far more serious question than the organisation of army corps in Kent and Sussex, because I think the effect of economic strain is our danger in war, and that whether we survive or not largely depends on the celerity and certainty with which admirals can act, all over the world, in the suppression of marauders, and the capture of the enemy's ships.

The CHAIRMAN (The Rt. Hon. Viscount Hampden, G.C.M.G.) :—I am sure you will allow me to conclude this meeting by expressing our thanks to Sir John Colomb for the interesting and instructive paper which he has read. I feel confident that

whatever may be the opinions upon the proposals made in that paper, whether in favour or adverse to the proposals, there will be one general feeling: that the discussion and the consideration of those proposals will be of advantage to the naval service. Personally, I do not feel myself qualified to give any opinion whatever upon the technical details, but there are certain observations which would occur even to the uninstructed man, and one is, that if you have a transference of the charge and administration of stores in the coaling stations from the War Office to the Admiralty, you must have a separation of naval from military stores, and a separation of naval and military administration, and all that means expense. Personally, I think that expense would be worth the cost, if it resulted in throwing upon the Admiralty the responsibility for maintaining in proper efficiency the equipment of the naval bases which are so vital to the effective fighting power of the fleet. An observation was made on that point by Rear-Admiral Henderson, and he said he was not in favour of the transference of this charge, because if the charge was transferred, then in the future, when it was desired to practise economy, it would be forgotten that the charge had been transferred from the Army Estimates to the Navy Estimates, and the Navy Estimates would be probably cut down. That is quite true. But we all remember very well that not many years ago the responsibility for the manufacture of all naval ordnance was in the hands of the War Office. What was the result? Whenever there was a split of a gun or anything went wrong, it was always the war officials at Woolwich who were to blame. The cry was: "We cannot get any guns," or, "We cannot get any guns in time." That is undoubted, and you have the responsibility for the ordnance on the Admiralty, where it ought to be. You have fixed the responsibility on the Admiralty, and they see that they have guns of the proper type and at the proper time. I do not see why what has been done in the matter of ordnance should not be done in the matter of other naval stores, and be charged for in the administration of the naval bases. The question is, whether that is a vital matter to the effective fighting power of the fleet. It seems to me that in these days we all forget—even Secretaries of State forget—these things. The Secretary of State for War only last year made a proposition for an increase of something like £3,000,000 to the Army Estimates for augmenting the Auxiliary forces in this country, but in doing so he apparently forgot that we are a naval Power, that we are really a sea Power, and that our first line of defence—and I will go further and say that as far as the defence of this country is concerned our only line of defence—is the Navy. Our progress and prosperity rest upon our sea commerce and upon maintaining the lines of communication for that commerce, and we must have sea power to keep open those great trade routes. And if we have sea power we must have stations to which the ships can resort for their armament, their coal, and their supplies. It follows, therefore—and I think it ought to be stated and repeated by public men—that the coaling stations of the fleet should be maintained effectively for war. Is that the case, or is that not the case? Only a few months ago the First Lord of the Admiralty said there would not have been any necessity for so much expenditure if there had not been a neglect of the equipment of the coaling stations for years. What has been said of the equipment of coaling stations is equally true of the transport of the army and the organisation for remounts at the War Office. The fact of the matter is that, if the truth were told, those who know would say that it is not the fault of this Government or that Government, or of any particular Government, but it is that all Governments for the last twenty-five years have neglected to keep up this service, and the consequence is that we never in this country prepare in time of peace for war. One suggestion was made by Sir John Colomb which has particular interest for myself,

because I know something of the Colonies, having resided for something like four years in New South Wales. The lecturer suggested that there should be a Colonial Naval Reserve. There has been a discussion in the papers recently, and it has been advocated in some portions of the Press that the Australians should have a fleet of their own. Anyone who knows Australia, who knows the wealth of Australia and the present condition of her population, would say at once that that is entirely out of the question—at the present time at any rate, because he would be a bold man who said that a thing would never happen. But I will say that, for Australia to have a fleet of her own is not possible at the present time. Public men know very well that the best method of protecting the great trade of the Southern seas is by the direction and control being in the hands of one central authority, which it is now under—the Admiralty. Moreover, it must be remembered that the Australians give a sum towards the fleet of something like £120,000 a year, which is large, having regard to their wealth and position and the condition of their population, although a very small sum indeed having regard to the charge which is borne on the Navy Estimates for the fleet, which has its base at Sydney. With regard to the proposal in the paper that there should be a Colonial Naval Reserve, as far as I understand that proposal I entirely agree with the principle. No doubt if you could have the great land defences at Sydney occupied and manned by a body of Colonials organised on the system of our marines, you would have an interchangeable force, and a force capable of extension, which might be of great assistance to an admiral in the event of war. But there is one observation I would make upon that, and upon all such arrangements for obtaining a Colonial Reserve, and that is, that I do not see exactly where you are going to get the men. I suppose a force of this kind would have to be trained in some measure for sea service. The whole thing might be summed up in two or three words, and that is, that every man in Australia who can work with his hands is able to get on shore a minimum labour wage—not the skilled labour wage, but a minimum labour wage—of 6s. 8d. a day. I put it to you, is it likely that a man who can get 6s. 8d. a day and be happy on land is going off to sea at a much smaller stipend? There is the difficulty you have. I may be a pessimist in the matter and make mistakes—we all do—but I hope, at any rate, that when the Premiers come over here this year at the Coronation the very interesting paper which Sir John Colomb has read will come before them, and I am quite certain that it will be a very great advantage for them to consider it. Now I beg to thank Sir John Colomb on your behalf for the paper which he has read, and which I am sure you have all thoroughly enjoyed.

Sir JOHN COLOMB :—And I am sure you will allow me, in your name, to thank our noble Chairman for his kindness in presiding here to-day, and for the obvious advantages we have obtained from his occupying the Chair, and the observations he has made.

OFFICERS' SHOULDER-BELT PLATES.

(LATTER PART OF THE EIGHTEENTH CENTURY.)

By S. M. MILNE, Esq.

DURING the Stuart epoch, officers of the British Army carried their swords by means of a rich shoulder-belt or baldrick. Before the advent of the first George, the crimson silk sash, denoting the rank of commissioned officer, was worn over the left shoulder, and the sword hung in the frog of a leather waist-belt, sometimes placed over, and sometimes under, the waistcoat.

This state of things continued until 1766 or 1769, when a considerable change took place in the uniform of officers; ample skirted frock coats, with large cuffs so long worn, gave way to narrow neat skirts fastened back behind, and small plain cuffs. The swords also were removed from the waist-belt to a narrow white shoulder-belt, and the crimson sash was tied round the waist, over the waistcoat, but under the coat.

This white leather shoulder-belt for the sword was worn under the coat, and at first ornamented, in the centre of the breast where it was much in view, with a small buckle and tip, silver or gilt, according to the colour of the regimental button or lace. It gradually became the custom to wear this shoulder-belt outside the coat; by the year 1776 this habit might be said to have been universal. Disliking the plain unpretentious effect of the buckle, regiments began to adopt something more ornamental in the shape of a small silver or gilt shoulder-belt plate. As the belt itself was narrow, some 2 inches in width, the ornaments had to correspond, and were, as a rule, about $2\frac{1}{2}$ inches high by 2 inches wide, always oval in shape. At first, and for some years, the design upon this oval plate was engraved, and confined itself, as a rule, to the Royal cipher G.R., the crown, and the regimental number (*vide* illustration representing the silver oval breast-plate of the 17th Regiment). As time passed on the ornamentation became more elaborate; the few regiments which, in those days, had regimental badges, placed them upon their breast-plates.

By the year 1795 the belts had become to be worn rather wider, and square, or rather elongated square, breast-plates came into fashion. In many cases the ornaments, instead of being engraved, were raised upon the plate, much enhancing the effect.

After the Peninsular and Waterloo campaigns a shower of battle honours was rained upon the regiments of the British Army, "to be borne upon the colours and appointments" (quoting the words of the Royal Warrant). As a consequence, nearly every regiment adopted breast-plates exhibiting the newly-acquired honours. The last of the oval-shaped plates disappeared, and by the year 1830 elongated square-shaped plates were generally worn, 4 inches by $3\frac{1}{4}$ inches in exterior dimensions, giving room for elaborate effects, which rather increased than otherwise until 1854, when the abolition of the shoulder-belt itself (excepting for Highland regiments) caused the final disappearance of the officers' shoulder-belt plate. One regiment, and one alone, had clung to the old-fashioned buckle, slide, and tip, which, in a rather smaller size, it had worn in 1770, and that was the 61st or South Gloucestershire Regiment.

It will be the object of this article to place before the reader a few illustrations of regimental breast-plates in use the last quarter of the eighteenth century, with a short notice in each case of the various plates which followed in their respective regiments.



SILVER PLATE
17TH REGIMENT, 1776.

17th Regiment.—The accompanying illustration represents, in all probability, the earliest breast-plate worn by the officers of the 17th Regiment of Foot. It is of silver, and has all the design engraved upon the surface. This plate was found, not long ago, whilst digging the foundations for some houses in the City of New York. The regiment was actively engaged during the whole of the American revolutionary war, and was at various times stationed in, or in the vicinity of, New York.

In or about 1799 a second battalion was raised, which, together with the first battalion, took part in the Helder campaign, and was reduced in 1802; a not altogether unusual circumstance being that it had a rather different breast-plate from that worn by the officers of the first battalion, the latter wearing an oval silver plate, having a raised silver rim or edge, in the centre of the plate another similar silver rim surmounted by a crown, within this inner rim the numerals 17, the whole in silver. The second battalion had a plain silver oval plate, thereon "17" surmounted by a crown, all within a raised silver laurel wreath.

The "Inspection Return" of 1828 states that the officers are wearing the "Tiger" upon their breast-plates, the latter costing £2 8s. 9d.

Three years previously authority had been received for the regiment to bear the "Royal Tiger" with "Hindoostan" upon its colours and appointments. In 1830, when the lace and buttons were changed from silver to gold, the officers' belt-plate was changed also from silver to gilt metal, a large silver cut star almost covered the plate, upon the star a gilt "Tiger," above it "Hindoostan" upon a gilt scroll, below it the number XVII. in gilt matted letters.

November, 1839, the honours "Affghanistan," "Ghuznee," "Khelat" were authorised. A new plate was accordingly brought into use, of gilt matted or frosted metal, nearly covered with a silver star, having a silver crown above it; one silver star ray to the right bearing "Khelat," one to the left with "Ghuznee," and one from the centre below with "Affghanistan," just under the crown a silver horizontal scroll with "Hindoostan"; in the centre of the star a gilt garter, having upon it "Leicestershire Regiment," within the garter, upon a raised silver centre, a silver "Tiger" above the numerals 17, also in silver.

73rd afterwards 71st Regiment.—Three separate regiments have borne the number 73 in the British Service. The first disbanded in 1764. The second, raised by Lord McLeod in 1778, was re-numbered 71 in 1786. The third was the second battalion of the 42nd Royal Highlanders, which took up the vacant number 73 in 1786.

It was the second 73rd, re-numbered 71 in 1786, to which the accompanying breast-plate belonged. Being in every sense a Scottish regiment, the small silver oval plate bears the Scottish motto, and one side of the wreath is composed of thistles and thistle leaves; all the devices and ornamentation engraved.



SILVER PLATE
73RD REGIMENT, 1786.

The date when this plate was used may be fixed between 1778 and 1786.

During the Peninsular and Waterloo periods, and possibly for a little time after, the officers of the 71st wore a very handsome breast-plate, square in shape with the edges rounded off, the centre badge of raised silver in a classical design, at the bottom fasces with axes at both ends, "71st Highland Regiment" appearing upon scrolls. An old metal worker's book describes the ground of this plate as being of gilt metal. Now the officers of the 71st always had silver buttons and appointments; still, other cases have been met with where silver ornamented regiments had gilt

breast-plates. The private soldier's plate was of precisely similar pattern in brass (a fine specimen, gathered from the field, may be seen in the Museum at Waterloo). From 1830 to 1854, the officers wore an elongated square gilt plate, with a large silver French horn having 71 in centre, all in raised silver. At no time did the 71st Regiment display any of its numerous battle honours upon the breast-plates of either officers or men.

63rd Regiment.—The annexed plate represents the oldest officer's breast-plate of the 63rd Regiment known to the author of these notes, and possibly may represent the first pattern worn. The shape is peculiar and very unusual; at the end of the eighteenth century plain ovals were generally used. The plate is silver with a bold beaded edging, a raised silver star in the centre, the regimental number engraved. The arrangement of the centre was copied from the buttons worn by officers and men so far back as the American War of 1776, specimens having been dug up

in the city of New York bearing this design. It is worthy of mention that this pattern (of the number within the star) continued upon the buttons until regimental numbers were abolished in 1881, an uninterrupted run of a century or more.



SILVER PLATE
63RD REGIMENT, 1790.

During the Peninsular War epoch, officers wore a plain oval bright silver plate bearing a garter with buckle and tip, crown over, upon the garter the motto *Honi soit qui mal y pense*, in the centre the number in Roman characters, all in silver, and all engraved. The changing of the appointments in 1830 from silver to gold necessitated a new breast-plate of a pattern which was continued without change until the dis-

appearance of these ornaments in 1855. It was a plain gilt square plate, $4\frac{1}{2}$ inches by $2\frac{3}{4}$ inches, "63" in centre, above it a scroll bearing "Martinique," below it another scroll with "Guadaloupe," the whole encircled by a wreath, a crown at the top. A few years before the plate was abolished a small gilt label was introduced above the crown bearing "Egmont op Zee."

The fleur de lys is the well-known "private" badge of this regiment. Its origin, says the regimental historian, is not known with accuracy, but it was worn by the officers, in some shape or other, from certainly 1790 to 1855; at the former date it was embroidered in silver upon the red shoulder-strap of the epaulette. Some ten or fifteen years afterwards it left the epaulette and became the skirt ornament,

and so continued until 1855, when the coat tails were discontinued. It does not appear to have ever been used, as far as is known, upon the officers' breast-plates, but for some time between 1820 and, perhaps as far as 1840, or even later, it appeared upon the waist-belt plate of the officers' undress word belts.

26th Regiment.—The earliest officers' breast-plate of this regiment which has been met with is here shown, oval and of silver, having "26" engraved immediately above a raised thistle in silver. The ancient title of the Cameronian Regiment would appear to have fallen into disuse in the middle of the eighteenth century, and when almost every regiment of foot received a county title in 1782 the regiment was not granted one at all. However, in 1786, upon the application of the colonel, it was decided that, in the future, it should be known as the "26th, or Cameronian Regiment of Foot."

Probably this oval silver plate was in use then and was continued until quite the end of the century. During the Peninsular War epoch a square silver plate, the corners a little rounded off, was worn, the ornamental parts of gilt metal, "26" in the centre within a bold wreath of thistles, conjoined at the bottom, above the wreath a gilt label or scroll, with the word "Cameronians," whilst below the wreath again was a gilt sphinx; this latter distinction, granted in 1802 to commemorate the share taken by the regiment in the Egyptian Campaign, under Sir Ralph Abercrombie.

It appears uncertain as to the design of the breast-plate in use before the change of the appointments of the officers from silver to gold in 1830. Indeed, the author is not at all certain of the design until the termination of the Chinese War of 1842, with the consequent grant (1843) of the "Chinese Dragon" with the word "China." The regiment had, so far back as 1823, received permission to bear the word "Corunna" upon its colours and appointments. The new breast-plate of 1843, worn until the abolition of these ornaments in 1855, was a bright gilt plate about 4 inches high by $2\frac{3}{4}$ inches wide, almost entirely covered with a large silver five-pointed star, or mullet, the centre of which was occupied by a gilt metal girdle bearing the word "Cameronians," within the girdle the number 26, in silver, upon a convex bright silver ground; above the upper



SILVER PLATE
26TH REGIMENT, 1790.

ray of the star a gilt crown, and between the latter and the top of the girdle a gilt sphinx with the word "Egypt." The outer points of the star encircled with a handsome gilt laurel wreath conjoined at the bottom; on the lowest star ray a silver label bearing "Corunna," quite at the foot and below the wreath a small silver label with "China," and below that again, just touching the edge of the plate, a silver Chinese Imperial dragon.

A word may now be said in explanation of the star or mullet which occupied so prominent a position upon the officers' breast-plate. When raised, in 1689, its first colonel was James Douglas, Earl of Angus; he commanded the regiment with success, until he was killed at its head, in the sanguinary battle of Steenkirk, 1692. Now three mullets on a chief are a very prominent part of the Douglas coat of arms, and it is presumed that the mullet was adopted by the officers in remembrance of the young earl. It may be termed a private badge, because it was never authorised, at all events, as long as the regiment bore the number 26. It may have been used upon some of the regimental mess plate, or upon the officers' epaulettes, indeed, its earliest mention is made in connection with these latter ornaments.

From old lacemen's books it may be gathered that in 1825-27 three small five-pointed stars or mullets were worn by the officers upon the straps of the epaulette, and further, the officers' skirt ornaments consisted of two silver embroidered hearts. Thus all the "charges" upon the Douglas coat of arms, the three mullets, and the heart, were made use of in 1825, and possibly enough may have been worn for a long time previously.



GILT PLATE
48TH REGIMENT, 1792.

48th Regiment.—The accompanying illustration represents a very early breast-plate worn by the officers of this distinguished regiment. It is small, about 2½ inches high, made of gilt metal, oval in shape, with all the ornamentation engraved. In 1782 the county title of Northamptonshire Regiment was conferred, hence that name upon the plate, and also the arms of the town of Northampton, so far the only instance known to the author wherein the officers of a regular regiment exhibited any desire of becoming identified with the county or county town.

In the early days of the Peninsular War, the officers wore a larger oval gilt plate, with a narrow raised half-round silver rim, in the centre a

¹ In the possession of Mr. R. DAY, F.S.A., of Cork.

smaller silver rim, surmounted by a silver crown, within this inner oval 48 in silver, upon a matted gilt ground.

In 1816 the regiment received authority to bear the words "Peninsula" and "Talavera" upon its appointments. It was much distinguished in the latter battle, and it is stated that Sir Arthur Wellesley declared that "the day was saved by the advance, position, and steadiness of the 1st Battalion of the 48th." Notwithstanding the fact that eight, or more, battle honours were granted to the regiment. from 1816-37, no other names beyond the two just mentioned ever graced the officers' breast-plates.

Not very long after 1816 a new one was adopted, which remained practically unaltered until 1855. It was the usual square gilt plate, with the number 48 in the centre, within a small double wreath of laurels; just above the number a long scroll bearing "Peninsula," a crown over; below the wreath another scroll with "Talavera"; the whole of the ornaments in raised silver.

78th Regiment (The Ross-shire Buffs).—This regiment was raised by Francis Humberstone Mackenzie (afterwards Lord Seaforth) in 1793, the



SILVER PLATE
78TH HIGHLANDERS, 2ND BN.
1791.

officers wearing silver shoulder-belt plates and appointments. A second battalion was raised in 1794 having precisely similar equipments, but with the addition of 2nd B (Second Battalion) upon the officers' breast-plates. The annexed illustration represents this plate. It was small about 2½ inches high, of silver, engraved; note the chaste edging, "husk pattern" it was called in those days. The well-known regimental motto "Cuidich'n'rhi" very prominent. This second battalion was reduced, or amalgamated with the first in 1796, the appointments of the officers being changed to gilt, or gold, soon afterwards. The annexed illustration represents the officers'

shoulder-belt plate then introduced.¹ In size about the same as last but made of gilt burnished metal, rather convex in form, with the ornamentation engraved.

During its long service in India, the regiment was much distinguished, especially at the battle of Assaye; as a consequence

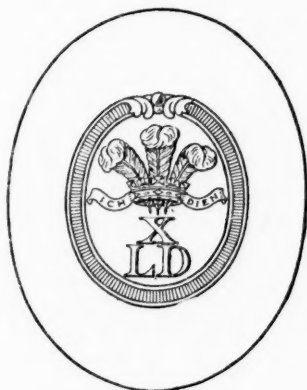
¹ Specimens of both these early plates of the 78th are in the collection of Major-General the Hon. H. F. EATON.

it received, in 1807, the privilege of bearing the word "Assaye" with the "Elephant," and also "Maida," upon its colours and appointments. The latter honour, "Maida," won by a newly raised 2nd Battalion during the period in which the 1st was serving in India. In 1815, possibly for a few years before, and certainly for some years afterwards, the officers wore an oval gilt breast-plate bearing in the centre the number 78, above it the crown, below it the "Elephant"; over the crown upon a scroll the regimental motto "Cuidich'n'rhi," whilst below the "Elephant" a scroll with "Assaye & Maida"; all the ornaments in raised gilt metal.



GILT PLATE
78TH HIGHLANDERS, 1797.

In 1840 the officers used a larger plate of square gilt metal, frosted' or matted, with a bright burnished edge; in the centre the "Elephant" and "78" with crown over, surrounded by a wreath of laurels and thistles; above the crown, upon a scroll, the regimental motto "Cuidich'n'rhi," below the wreath a three-jointed scroll with "Assaye," "Maida," "Java." This last honour granted in 1818. The whole of the ornamentation of this plate in raised silver. Later on "Persia," "Kooshab," and "Lucknow" were added; with these additions the plate continued until 1881.



SILVER PLATE
10TH LIGHT DRAGOON, 1790.



GILT PLATE
3RD DRAGOONS, 1795.

Cavalry Breast-plates.—Some cavalry regiments wore shoulder-belt plates at the end of the eighteenth century, either upon the sword belt,

when worn over the shoulder, or upon the pouch shoulder-belt. The "Military Library," 1799-1800, etc., gives examples in the case of the 1st and 2nd Life Guards, also 3rd Dragoon Guards, whilst the 2nd Dragoons exhibited the plate upon the pouch-belt. The 10th Light Dragoons wore a silver oval plate (*vide* portrait of the Prince of Wales in the uniform of the corps, by J. R. Smith) upon their sword shoulder-belts of the pattern as shown in the foregoing illustration; all the ornaments in raised silver. The officers of the 3rd King's Own Dragoons (now 3rd Hussars) also wore one of very peculiar shape and appearance (*vide* illustration), the plate of gilt metal with the devices engraved, but the plate bunched up in the centre, quite convex in form, resting upon the four outside corners, which were quite flat. The Royal cipher, it may be noticed, is peculiarly rendered.

COAL ECONOMY AND THE PRICE OF SPEED IN WAR-SHIPS.

By A CHIEF ENGINEER, R.N.

IT has become fashionable to speak of our modern and faster war-ships as coal eaters, which are unable to steam for any distance equal to their predecessors or the corresponding class in foreign Navies. The adverse influence of greater designed speed on cruising economy leaves many points partially unexplained to the uninitiated, and even to many others who pose in the public eye as naval experts. It is proposed to touch on these points, and at the same time to call attention to what has been gained in ships of modern construction, and also the price that is being paid for this gain; the manner in which the price can be reduced either by improved arrangement, or by greater attention to economy which may be exercised by the ship's staff, where such economy may be within their control.

For purposes of comparison, two third-class cruisers of about 2,000 tons displacement may be taken as examples of general progress. Each carries about 350 tons of coal. By some inexplicable method, ships are frequently credited with about 80 per cent. greater radius in various publications than that obtainable in practice. Apparently, the compilers of these tables take it for granted that half a ton of coal would propel a ship 10 knots at a 10-knot speed, frequently regardless of the tonnage displacement. Thus we find the ships of the "Medusa" and "Orlando" types are classed on this basis, although the latter is double the tonnage of the former.

The "Archer" class were supposed capable of steaming 7,000 miles at 10 knots, or about 20 knots per ton of coal. Although they are among the most economical of third-class cruisers, they steam just about 10 knots per ton of coal used for all purposes. It is this question of *all purposes* which governs the steaming radius. At increasing speeds there is a constant and slightly increasing expenditure of coal for various purposes: water has to be distilled for drinking and for making good losses for boiler feed; the steering engine is in intermittent use; the electric light is working during the day for the engine and boiler rooms and such other parts of the ship which require lighting

even by day and for general purposes all night; ventilation fans are frequently required; and there are the many and various engines used for working guns, torpedoes, and ammunition, in addition to others used occasionally for short intervals, such as boat and ash hoists, capstan and winches.

For a third-class cruiser, there is a tabular statement, such as below:—

Coal Consumption, Speed, and Distance Run.

Speed.	Coal used per hour for					Distance run per ton of coal used for	
	Auxiliary purposes.	Electric lighting.	Distilling.	Main engines.	Total all purposes.	Main engines.	All purposes.
knots.	cwts.	cwts.	cwts.	cwts.	cwts.	knots.	knots.
6	2	1	1	7½	11½	17.1	10.4
7	2	1	1	9½	13½	14.7	10.3
8	2	1	1	11	15	14.5	10.6
9	2	1	1	12	16	15.0	11.2
10	2	1	1	14	18	14.3	11.1
11	2	1	1	17	21	13.0	10.4

From this statement there does not appear to be much difference between the distance run per ton of coal burnt for *all* purposes, for any speed between 6 and 11 knots, nor is there in practice—in fact, these figures are based on practical *data*. In every engine, there is some power or speed of revolution, either separately or combined, according to surrounding circumstances, at which it will perform its duty more economically than at any other speed or power. Thus, at a speed of 6 knots, the consumption of coal per I.H.P. per hour is 5 to 6 lbs., while at 9 to 10 knots it is reduced to 2½ lbs., and at 12 to 13 knots to 2 lbs. or less.

Unfortunately, this table is only true under similar conditions of wind, weather, and state of ship's bottom.

The H.P. varies enormously under different conditions of wind and weather, and particularly from the cleanliness or otherwise of the immersed portion of the ship's surface.

The speed falls off under any obverse influence, and the table may vanish into a thing of straw for all practical purposes. Under fair and favourable conditions it is possible that a speed of 9 knots could be obtained for a moderate period (say, 30 hours) with a certain number of boilers (say, one half) in use. Nothing can be left to chance; there must be some reserve of power if the speed is to be maintained, and another boiler is required so soon as any difficulty is expected in keeping steam. To make this into a real economy, for boilers like engines have a most

economical rate of steaming, it will be generally found advisable to increase the speed a proportionate amount.

The designed power of the modern third-class cruiser is 7,000, and of those of 14 years ago 3,500 under forced-draught conditions, while the designed speed is respectively 20 and $16\frac{1}{2}$ knots. Under natural draught the speeds fall to 18 and 15 knots respectively, and the corresponding powers fall to 5,000 and 2,300 I.H.P. It is at these natural-draught powers that generally both the engines and boilers will be found to develop the greatest amount of power per lb. of coal burnt; in other words, that the coal burnt per I.H.P. per hour will be the least.

Consequently, the economical speed tends to increase when the designed power increases, and it is generally found so in practice. For this reason, our modern cruisers should cruise at a higher speed than the older ones, and probably, if the jump is taken boldly, that instead of a speed of 10 knots, one of 14 knots will be found fairly economical for cruising. The greater the tonnage of a cruiser, the higher should be her cruising speed, because the daily consumption of coal for purposes other than the main engines of large cruisers is much larger in proportion to the power developed than in small ones.

Coal and Water Consumption.

				P (modern vessel)	Q (antiquated vessel)
Period under consideration	...	...	days	1,168	1,170
Knots steamed	...	...	total	49,014	51,244
Hours under way	...	...	total	4,906	5,480
Average speed, knots per hour	...	...	...	10	9.3
Coal, for steaming only	...	...	tons	8,123	4,960
.. for auxiliary and harbour purposes	...	...	tons	6,140	3,072
.. total	...	...	tons	14,263	8,032
Electric light in use	...	...	days	863	514
Water used for make-up feed (boilers)	...	...	tons	5,024	1,684
.. made for ship's use...	...	...	tons	1,803	1,997
.. total distilled	...	...	tons	6,827	3,681
.. average daily boiler loss when steam was up	...	...	tons	5.8	3.3
Distances run per 1 } For steaming only	...	...	knots	6.0	10.3
ton of coal used } For all purposes	...	...	knots	3.4	6.3

A table has been compiled of comparison between a modern and an old third-class cruiser. The table embraces a period of $3\frac{1}{4}$ years in each case, and the conditions in each ship have been very similar. Each has been engaged at a long distance from any source of supplies and for long periods debarred a refit, except such as could be performed by the ship's staff—in short each of the cruisers under consideration has been thrown largely on its own resources. The total distance steamed is approximately 50,000 knots, and the modern one made an average speed of 10 knots against the 9.3 of the older one. It is when the distance run per

ton of coal, however, is considered that the old ship of small power scores 10·3 knots against the 6 knots of the modern cruiser for steaming only and a distance per ton, if we take harbour and auxiliary purposes into account of 6·3 knots against the 3·4 knots of the modern cruiser.

For such an enormous difference as 6,231 tons of the total coal burnt, namely, 14,263 tons against 8,032, it is difficult to account. Further investigation shows that the electric light which may be taken as accounting for $1\frac{1}{2}$ tons of coal per diem was in use 863 days in the modern cruiser against 514 days, this possibly accounts for 420 tons. The average daily loss of boiler water, which was made up on board, amounts to 5,024 tons against 1,684, or an average daily loss when steam was up of 5·8 against 3·3 tons. Assuming that 5 tons of water are produced per ton of coal, which is the average in the old ship, then the difference of water made for boilers, 3,340 tons, may account for another 660 tons of coal.

This extra expenditure of 3,800 tons, which amounts to, roughly, 1,200 tons per annum, or nearly one-half the expenditure for steaming, must be attributed to difference in design or the price of speed. Considering all the benefit of a dozen years' improvements, it appears an extraordinary result. It is known that speed is an expensive luxury; this appears enormously expensive, and not based on any sound commercial basis.

There is one consideration which, for comparative purposes, seldom enters into naval work, which can be eliminated in these typical ships. They were built and engined by the same firm of engineers and ship-builders; both ships gave some trouble on their contractors' trials, but apparently, after certain errors either of workmanship or design, or perhaps both combined, had been corrected, fairly good results have been obtained. Each class inaugurated a new departure; it is but natural that defects should accompany modern innovations; such is the penalty of progress in all science.

For this penalty or extra expenditure of 1,200 tons of coal per annum, which may be computed at a value of at least as many pounds sterling—what is gained? In P, the modern cruiser, the machinery and boilers weigh 551 tons against the 588 tons of Q, the older cruiser, and rather more than double the power has been thus put into P for approximately the same weight. There is plenty of progress in this respect, and if considered from a point of speed alone, the 20 knots of P are more easily obtained and maintained than the $16\frac{1}{2}$ knots of Q. In fact, the latter can be considered an extremely doubtful quantity after steaming a few hours, although 15 knots can be maintained for as long as the coal lasts under favourable circumstances. It may be fairly concluded that there is a distinct gain of speed of $3\frac{1}{2}$ knots for a short and

3 knots for an extended period, and that the displacement has not necessarily been increased on account of the machinery and boiler weights. The weight of coal carried is practically the same, although this does not agree with many publications, which give 250 and 475 tons respectively for P and Q. It might be mentioned here that P is fitted with express boilers, which are French adaptations of the original Thornycroft type as fitted in the "Speedy"; it would be impossible to fit the Belleville type on anything like the weights given above, as these boilers are almost as heavy as the Scotch or tank boiler. The saving in weight in P is almost all due to the adoption of water-tube express boilers.

At about half power, which gives a speed of 16 knots (almost impossible of attainment in Q), P consumes $3\frac{1}{2}$ tons of coal per hour, which is somewhat greater than Q's consumption at similar power and speed. At 10 knots Q's consumption per I.H.P. per hour for all purposes is 2.5 lbs., and as P's power is practically the same, and the total consumption is so much greater, as evidenced by the table of actual consumption, P must burn considerably more than $2\frac{1}{2}$ lbs. per I.H.P. per hour. This is the spot which shows the great influence which increased speed and power have on the cruising consumption of modern vessels. P has engines designed for twice the H.P. of Q, and naturally at low powers the coal consumption is greater on this account, as the larger engines with 6 cylinders require more power to move them than when 4 are used as in Q. On the other hand, P has three-stage expansion with double the working steam pressure of Q, which involves smaller and lighter engines comparatively. The power required to move them should not be much greater than that required by Q, whose engines are only two-stage expansion.

Again, P's engines are vertical, Q's are horizontal; this is in favour of P.

On the whole, it may be concluded that for main engines alone the coal expenditure for cruising speeds should not be much, if any, greater than that of Q, and leaves the excessive consumption unsatisfactorily explained. This excessive consumption, if properly expended in propelling the ship, should have resulted in an average speed of about 11 knots and not 10, and all the explanatory evidence must be regarded as inconclusive, and only an open verdict can be returned.

There is still the difference of 1,988 tons, allowing 420 tons for extra electric light and 660 tons for extra water distilled, to account for in auxiliary and harbour purposes. Perhaps this may be partially debited to having fires banked for some period not shown. With express boilers which are capable of raising steam under fairly moderate conditions in an hour, it is not reasonable to suppose the quantity used for this

purpose was anything approaching the total of nearly 2,000 tons. Allowing the sufficient amount of 2 tons per day, it means fires banked for 1,000 days, which would more than account for every day in commission considering the vessel was under way over 200 days.

It may be assumed that approximately the same routine has been adopted in both ships in computing the coal consumption for auxiliary purposes, and it is proposed to touch on these in detail, showing how each may be effected by local conditions. Where detailed quantities are given, Q's consumption is quoted.

1. The electric light is a heaven-sent blessing to those whose duties call them below the sea level in ships. It has increased the efficiency enormously, and it is probable that without its assistance the reduction of the mechanic staff of H.M. ships would have led to dire disaster even in peace-time. The small expenditure on running the dynamo has more than paid for itself, and now that a more economical type of engine is becoming general, it ranks as one of the greatest improvements effected since the advent of steam. The coal bill is swelled perhaps, but it is money well and generally economically expended, and in large ships an actual saving on the old cost of lighting may result. Sanitary conditions and the general health are improved by it, but unfortunately it may, when continually running, render the ship in hot climates excessively hot. This heat, however, is preventable, if proper arrangements are made for ventilation and that the dynamo plant is placed in a position conveniently near the boiler, so that as little heat as possible may be evolved from the steam pipes and connections in use. When the dynamo is running, the following engines in addition, are generally at work :—

- a.* Feed pump for pumping water from feed tank into boiler.
- b.* Circulating pump for cooling the condenser which is in use.
- c.* Auxiliary air pump for removing the condensed water from the condenser to the feed tank.

There is a certain daily waste of boiler water to be made up, and this involves an evaporator working 4 or 5 hours on an average daily. With large reserve tanks this loss only requires to be made up occasionally, and in addition the evaporator requires :—

- d.* An evaporator feed pump, and if the distillers are also at work for water for ship's use the
- e.* Pump for circulating cooling water through the distiller plant is also in use.

2. Evaporating and distilling plant. It is difficult to conceive how these seemingly numerous engines can be reduced and at the same time not detract in some way from the general efficiency of the ship considered as a whole, and the purposes for which it is designed for use in

war. It is possible that the same engine might, with a slight modification of pipe system, be made to do duty for circulating water, both through the steam condenser and the distilling condenser, and again it is possible to dispense with the evaporator feed pump, by maintaining sufficient pressure in the cooling side of the distilling condenser to feed the evaporator. This latter system has been sometimes adopted; it necessitates a certain juxtaposition of the various plants mentioned, which also conduces to the minimising of the numbers required to superintend their working.

In ships of Q class, there is an evaporator in each engine-room, the dynamos are on the deck above, and the distillers are in one of the boiler compartments. The least possible number of men which are required on watch is 4 at a time, and it is also necessary for a petty officer to be in general charge of the watch—a total of 15 men; and in no place in the world could such a number be employed for so small a purpose except in the Navy. When the ship is under steam, these men can, and do, perform other watch-keeping duties in addition, but their presence is indispensable in each of their assigned stations when in harbour. There is some slight improvement in modern ships in this respect; there is, however, still room for more.

The combination of some of the work to be performed would probably admit of a compound engine being substituted for the simple expansion engines generally employed. If the evaporator feed pump could draw its supply from the circulating water used in the distiller, the necessary circulation might be induced by its suction. This is embodied in some distilling plants and is correct in theory and economical in practice. To gain the highest possible efficiency, the circulating water should have an upward direction of flow, and as the water is heated by the steam from the evaporator condensing on the cooling surface of the distiller, this would only require to be supplemented and not entirely operated by the circulating pump. This same system of circulating the cooling water in the main or auxiliary condensers appears capable of further economical developments. The circulating engines are generally of the single stage expansion type. A compound engine on the tandem principle could generally be substituted.

3. Quantity of fresh and distilled water carried. There is one period of several months included in Q's statistics when steam was only raised for distilling weekly, and occasionally for the usual target practice. Opportunity was always taken when steam was raised for any purpose to complete with water at the same time. There is good reason for such practice.

When all tanks and stowages are filled for use of the ship for drinking, cooking, etc., a total of about 14 tons results for future use. The

daily average expenditure is about 3 tons per day, in round numbers 20 tons per week; this allows 6 gallons a day for each officer, 4 gallons for each person employed on very dirty work and $3\frac{1}{2}$ gallons for the remainder.

The evaporators have an output of 20 tons per 24 hours, of which, however, the distillers can only take 10 tons. Steam was raised in one boiler once a week, and naturally it took about 48 hours to complete with water. The cost of this 20 tons of water is considerable. The coal actually expended is apportioned thus:—

	Tons
Laying fires and raising steam in one boiler	1.0
Electric light—48 hours at 1 cwt. per hour	2.4
Distilling for ship's use, 20 tons at 4 cwts. per ton	4.0
Distilling for boiler water lost, 4 tons at 4 cwts. per ton	0.8
Auxiliary purposes, sanitary pump, etc.	0.8
Total	9.0

The result is that for 20 tons of water made, 9 tons of coal have been expended. Anyone who knows the price of coal can work out what water costs to make in this case. By reason of the boiler being so large in proportion to the work it had to do, it was found that the actual total expenditure was not increased perceptibly by running the electric light, although in the table 2.4 tons have been apportioned for lighting. Frequently, in addition to this expenditure of 9 tons, another ton was expended to ventilate the stokehold, the temperature, when there was no wind (a common experience in the tropics), rising to 140° to 150° Fahr.

This expenditure can be reduced by fitting the evaporator and distilling plant of a similar capacity to that of the boiler which operates it, and by increasing the stowage of water for ship's use to some more reasonable amount, say sufficient to allow of steam being raised once a fortnight, or about 34 tons. The boiler is capable of working both evaporators, and occasionally the electric light.

The expenditure, under the proposed conditions (viz., 34 tons stowage and distillers of 20 tons capacity per diem), stands as below for a fortnight's work:—

	Tons
Laying fires and raising steam in one boiler	1.0
Electric light—52 hours at 1 cwt. per hour	2.6
Distilling for ship's use—40 tons at 4 cwts. per ton	8.0
Distilling for boiler water lost—4 tons at 4 cwts. per ton	0.8
Auxiliary purposes, etc.	0.8
Total	13.2

The result is that instead of expending 18 tons, only 13.2 tons are burnt—a saving of nearly 5 tons a fortnight or 125 tons per annum. It

is probable that this amount is far below what actually obtains in many ships. Twelve days' supply of water would save much more than appears from this statement. In these days of improved water-works in nearly all ports, distilling for ship's use would be almost unnecessary. Means by which war-ships can obtain supplies from shore are practically non-existent; such as are supplied can only be regarded in the light of emergency fittings, and the boats are entirely unsuitable for the work. It is a matter of common remark that the Admiralty do not favourably consider the purchase of shore water for *any* purpose, and some yarns state that it is because coal and water come under different Votes of Supply, thus leaving the country to pay an unnecessarily large coal bill because the water bill cannot be inflated. If true, it is a short-sighted and expensive policy.

The use of shore water is not generally advocated for boilers; it is preferable of course to salt water at any time, undoubtedly; but water which has been evaporated is the best. The boiling entailed by evaporation expels the air, which is always present in salt or fresh water, either in solution or mechanically mixed. The elimination of this air (with the oxygen and acid gases contained in water) is the most important factor in the prevention of boiler corrosion. Boilers worked on this principle show practically no signs of corrosion over long periods of lying idle or steaming. The economisers of Belleville boilers, which appear to suffer considerably from corrosion, bear out this view; it is here particularly that the air is separated by the heat applied from the water which held it in suspension, thus freeing the most active of all corrosive agents generally found in ordinary practice. Acids which can be detected are generally neutralised by some alkaline re-agent before being pumped into the economisers.

Boilers which have been under steam, and after being shut off are allowed to remain so, seldom if ever suffer from corrosion; while boilers which are pumped up to the crown shortly after steaming do suffer in this way to some extent. The heat remaining in the boiler evolves the excess oxygen from the water freshly introduced and leaves it in a nascent state free to corrode the boiler. The corrosion of boilers cannot be said to be involved in the subject under review; but as the instructions are not clear on this point, it has been inserted for the benefit of brother officers, many of whom are probably aware of its importance.

As regards the quantity of water carried, it is evident that it should be generally increased for ship's use, and that that for boiler use should be boiled before its introduction to the boilers.

4. For ventilation purposes electric motors are most suitable. In ships in which a ventilating fan driven by steam is fitted, the engine and

necessary pipes serve frequently as much to heat as to ventilate, and the result is by no means refreshing. By judicious combination of the dynamo plant to work motors for such purposes as ventilating both ship and machinery spaces, working and training guns, and working hoists for ammunition, great economy should result.

The dynamos should be of similar design and capacity, so as to give interchangeability of parts, and the engines built on the triple-expansion principle, or perhaps quadruple-expansion working on two cranks. One machine should be sufficient for harbour purposes, two for general purposes when steaming, and three when required in addition for gun drill and quarters for action, while a fourth is held in reserve and for search-light purposes.

The utility of the exceptionally high down-cast ventilators is not borne out by practical experience, the only reason for their height is that the motion of the vessel should allow free access to them for imparting its velocity to the rate of air passing down them. If their height is sufficient to prevent them being masked by the vessel and its fittings, and at the same time freedom from waves breaking into them, nothing further is requisite. The down-cast trunks should be taken to the bottom of the compartments they ventilate; if any additional length of trunk is required, it is not at the top but at the bottom end. On the other hand, up-takes should be taken from the highest part of compartments, and the trunks carried up as high as possible. Many vessels appear to be fitted with exactly the wrong principle of ventilation, where if the proper system had been applied ventilation fans would never be necessary.

5. The auxiliary engines for which electric motors can be efficiently substituted are: Ventilation fans, gun working and training, ammunition hoists, and workshop machinery.

A consideration, which should always be carefully weighed in the designer's mind or by the advocate of using any power which must have steam for its prime motor, is, whether the loss of economy and efficiency when using an intermediary such as a pneumatic, hydraulic, or electric motor is outweighed by the general improvement effected by its adoption.

Either of these motive powers must be obtained from the primary motor, the steam engine, at a loss of economy and efficiency. The efficiency of the steam engine is only about 66 per cent., that of a hydraulic motor about 70 per cent., and of an electric motor 90 to 95 per cent. in the best designs. So that in applying hydraulic power under the best conditions, the efficiency obtained will be $\frac{66}{100} \times \frac{70}{100} = 46$ per cent. about, compared with the 66 per cent. of the steam engine applied directly. With electricity the efficiency is higher; but still there is a loss.

The weight of two motors, both steam and hydraulic, must also be considered. In some instances, such as training and laying the guns, steam is unsuitable if applied directly, so that other motors are applied, and it is a question of weight principally and the general considerations of utility and repair.

6. For steering the ship, compressing air for torpedoes, refrigerating machinery, starting and reversing the main engines, turning the main engines and for all pumping engines, steam must remain the primary and only motor. The work is entirely unsuited to derived motors.

7. There are some others, such as capstan and hauling winches, boat and ash hoisting, which adapt themselves easily to either electric or hydraulic power. If electricity is used for the guns and other purposes, then a hydraulic motor has no *locus standi* for these purposes only, and a casting vote must be given to electricity. Whether either hydraulic or electric power should be fitted is a question peculiar to each ship, and it must be always considered that conversions of power are not economical either in weight or fuel.

Summary of Gains and Losses.—The modern third-class cruiser carries as armament eight 25-pounder and eight 3-pounder Q.F. guns, whilst Q carries six 100-pounder Q.F. guns and eight 3-pounder Q.F. guns. These are under a somewhat similar amount of protection, which is sufficient to protect the crews of the larger guns from small-arm and light Q.F. projectiles. The torpedo armament is practically identical. Armament alone considered, there appears to be no gain in the modern vessel, but probably this is not the opinion of gunnery experts.

Each class of vessel is fitted with a protective deck, and here P scores heavily with 2 inches against the $\frac{3}{4}$ -inch turtle back of Q. It is to this difference that the extra tonnage displacement of P must be due. This protective deck is an enormous gain and quite outweighs any possible difference of armament.

P is considerably longer than Q, and is reported as capable of maintaining her speed in any ordinary rough weather. This is impossible in Q, where a moderate sea impedes the speed from 10 to 20 per cent., while the power required to maintain the speed increases enormously. All this, which for war-ships may be considered sea-going quality, is in favour of the modern vessel.

It has already been pointed out how a great and useful increase of speed has been obtained.

Against all these gains there is considerable loss at cruising speeds to be set off, and here it may be stated that such loss should be almost, if not entirely, eliminated. For the better encouragement of economy by engineering staffs it is suggested that an annual return should be issued by the Admiralty similar to that issued giving the result of annual

prize-firing. The ships should be arranged on a tonnage basis in their several classes of battle-ships and cruisers—first, second, and third class. The required figures are fully shown in the Abstract of Consumable Stores rendered to the Admiralty annually from each ship in commission. At present there is no apparent inducement held out to engineer officers to practise economy, and any individual efforts are almost entirely due to instinctive economy and the jealousy with which each and every officer naturally regards the performance of his ship. The daily and weekly signals made when ships are in company are frequently misleading and inconsistent with continued economy. The pride of place should be given generally to the ship which travelled the greatest distance per ton of coal used for *all* purposes. Individual efforts of engineer officers require more official recognition, and this return, if issued, would be one means of doing so; the national coal bill would be considerably decreased by this method of open reward for economy.

REALISTIC TARGETS.

By Lieutenant F. S. GARWOOD, R.E., Bombay Sappers and Miners.

ONE of the most noticeable results of the campaign in South Africa is the increased interest displayed in the musketry efficiency of the soldier. There seems to be a universal impression abroad that training at the range as at present carried out does not produce, except in a very few gifted individuals, the high standard of marksmanship that the advent of smokeless powder has shown to be necessary on service. The British Army in India realised this three years ago, and every officer who served in the North-West Frontier expeditions of 1897-98 must feel the uselessness of continuing to train his men in firing volleys at a short range at a large target. One certain result of the war now going on is that troops will have to be trained to fire more rounds under service and less under rifle-range conditions.

Thus a revolution in targets is certainly foreshadowed. The black bull's-eye on a white background must be relegated to its proper position as a target for practice and sighting shots, and not worth the attention of a skilful marksman.

The Royal Engineers Institute has recently published a pamphlet entitled "Targets for Infantry Field Firing," translated from the German Regulations, which is full of information likely to be of great use to officers called on to provide field-firing targets. The Germans have treated the subject most exhaustively, and appear to be so anxious to ensure their targets being life-like that there are no less than twenty dimensions figured on the diagram of the infantry soldier standing. The only fault that can be found is that the targets suggested are too beautiful and costly to be supplied in large numbers with the limited funds generally available for field-firing purposes, and that shelters have to be provided for a small army of markers.

The British officer has just as much experience in shooting and getting shot at as the average foreigner, but having to perform his duties in out-of-the-way parts of the world he has to dispense with expensive field-firing stores, and to do the best he can with the materials to his hand. He is frequently ready to assume that they must necessarily know much better how to do these things at home, so hesitates to make public any little contrivance he may have found useful abroad.

As one who has always taken a keen interest in rifle shooting, and also has assisted in preparing several field-firing positions, I venture to publish the details of a very simple vanishing target, which I have used on several occasions. It is so simple, I should hesitate to publish it; only after perusing the German Regulations I have failed to find an equally simple target, and no mention of any automatic vanishing target.

Officers will find that the target is not only useful for field firing, but may be used to assist in training troops to estimate ranges for themselves. For the main object of a vanishing target is not to hurry a soldier's aim, but by suddenly appearing at an unexpected point, to compel him to make an attempt to form an estimate of its correct range. It also would serve excellently as a dummy to place on a parapet to draw an enemy's fire.

The essential feature of the target, which is clearly explained in the diagrams, is that it is balanced on pivots near the centre, like an ordinary toilet looking-glass. It vanishes by assuming a horizontal position.

The following are its advantages:—

1. Extreme simplicity.
2. Extreme cheapness, which enables large numbers of targets to be provided for field firing at a small expense.
3. Being pivoted at the centre and not at the bottom corners, it is so light that one man can pull up six targets at a time with one hand, even from a considerable distance.
4. It can be used, with "Bickford" safety fuse as an automatic target; so as to show a powder puff, remain up a given time and then disappear.

This powder puff can be fired electrically, or by a long length of telegraph wire which enables a series of targets to be worked up to 200 yards from the butt.

5. It can be put up anywhere in a few minutes, on a hillside or behind a boulder, simply by driving two pickets into the ground.
6. It is so light in action that it can be worked by the cheapest twine.

It has one disadvantage, namely, that unless placed behind a shelter trench it is exposed to fire, when not exposed to view. But as the mark is so minute, and the chief point of the target is that it should be used in large numbers, the chance of its being hit are very small, and no harm is done by one or two targets being put out of action.

The target is shown in Fig. 2. The target should only be 2 feet square, so as to represent a single man, exposing himself to fire. It should be covered with the cheapest cloth obtainable, papered and painted. As the necessary talent to paint good and life-like targets is not

often obtainable, and also the operation requires a considerable expenditure of time and labour, it would appear to be highly desirable that designs of a man life-size should be chromo-lithographed in a similiar style to the ordinary theatre poster, and kept as an article of store for field-firing purposes. One design representing the head and shoulders of a man in khâki on a neutral background 2 feet square would be sufficient (Fig. 1). Printed in the new three-colour process, its cost should not be prohibitive. Body and legs when required could be easily added by local artists with khâki paint.

The supports of the targets are merely two-pointed battens with a hole bored near the top to take the pivots. The pivots can easily be made by any armourer or blacksmith. The ends of the pivots should be left rather long to prevent them falling out if the supports should splay a little outwards. They should be fixed on the targets, so that a slight excess of its weight when balanced should be towards the head side.

The cross-piece close to the ground should be rounded and about the thickness of a broomstick to act as a pulley. If the target has to be placed so that the line is pulled at an angle, an ordinary wire nail placed in the cross-piece will prevent the line slipping into one corner.

The targets on ordinary smooth soil will work up to a distance of 50 yards from the shelter without pulleys for the appearing line. With pulleys and disappearing lines, I see no reason why two men in a shelter should not work as many as fifty targets, and have also the power of working twenty more automatically as a surprise target, as far away from them as 200 yards.

Automatic Vanishing Target. Fig. 5.—This is constructed from the ordinary pattern targets; the only extra stores required being some "Bickford" fuse, some quickmatch, a pinch or two of powder, and a stone weighing a couple of pounds.

If the target is required to appear for two minutes, a length of fuse to burn that time is cut off.

The stone is lashed to the foot of the target with strands of quickmatch.

The target is then fastened so as to remain in a horizontal position by a string from the head of the target to the cross-piece. A powder puff is attached to this string, and one end of the target fuse is securely fixed to this powder puff; the other end being attached to the quickmatch fastening on the stone.

To make the target appear, ignite the first powder puff; this cuts the string keeping the target horizontal, and the weight of the stone makes the target appear. The fuse having burned two minutes, ignites the quickmatch, the stone rolls to the ground; the target, being released, falls back

into the horizontal position and disappears. Care should be taken to prevent the first puff being so big as to ignite the quickmatch, which should be protected as much as possible.

These targets should be arranged in sets of ten connected with each other with fuses. They could be connected with instantaneous fuse, so as to appear simultaneously; or with Bickford fuse, so as to appear in succession.

To Ignite a Distant Fuse.—Having no electrical apparatus, nor being able to afford the necessary length of fuse, the following is an extemporised method of lighting a fuse, rocket, or powder charge.

The only stores required are 200 yards of telegraph or fencing wire, a friction tube, always obtainable from the R.A., a couple of yards of thin wire, two large nails, and a stone about the size of a man's head.

The friction tube is nailed to a post or stump of an old tree, at a distance of about 2 inches from the powder puff to be ignited. The stone is attached to the eye of the friction tube with a drop of about 18 inches. The end of the telegraph wire is attached to a small piece of stick. The stone is then balanced in a forked branch, or on top of the post, so that it is kept in its position by the small stick. On pulling the wire the stick will be pulled away, and the stone in its fall will pull the eye out of the friction tube. I have tried this method often and never known it to fail to cause ignition. It may be used to light a flare-light or with a trip wire to act as an alarm. Fig. 6.

With these simple vanishing targets I claim that an officer with a certain amount of ingenuity can attain all the results of the more complicated German targets at quarter the expense. The only target he cannot simulate is a man moving at a gallop across the field of fire. I know of no way this can be done without laying down trolleys on rails, and by sleds with enormous expense of motive power and necessity for wire cables. And I have come to the conclusion that in India we shall have to be content to do without these expensive luxuries. Besides, first make certain of hitting your enemy sitting before expending large sums in trying to hit him in rapid motion. A line of vanishing targets can be worked to a certain extent, by making them appear in succession from one flank, to give the effect of men moving across the front. But, of course, this is only as satisfactory as a cinematograph worked at a slow rate of speed.

I should now like to touch briefly on an article which appeared in the March number of the *Fortnightly* by W. A. Baillie Grohman, where he stigmatises the British nation as "an unarmed people," and appears to have little confidence in the British rifleman who stays at home.

He states that "Nobody is more unpleasantly aware than the writer that when he speaks of short ranges and the standing position, as by far the most suitable for learning to shoot, when he characterises English long-range shooting for war training ends as a waste of ammunition he has against him every British rifle shot who has not been abroad."

I give as my excuse for enlarging on the subject that I have done a considerable amount of rifle and revolver shooting myself, that I have trained several teams in India, that I have spent many hours on the rifle range, run a small rifle club, and also served in Tirah, so I trust may claim to represent a small percentage of Indian opinion.

The supreme test of musketry training is the annual brigade field firing, so I will recommence with some notes on—

The Field-Firing Position.—Now, first as to the requirements of a good field-firing target; these are very clearly laid down in the introduction to the German Regulations, which state, that "To properly educate troops, it is necessary to make the objects fired at resemble those they would encounter on service."

There is, however, another side to the question, and that is, that to score a fair number of hits to show some return for the large amount of ammunition expended, that this paragraph might be amended to: "To ensure a proper number of hits, it is necessary to make the objects fired at resemble those the troops are accustomed to encounter on the range."

It follows that the officer given a free hand in the arrangements of a field-firing position must choose between two schools:—

1. The officers who went on service in '97 and found that against smokeless powder the targets "encountered on service" were very small, difficult to see, and impossible to direct volleys at.
2. The officers who still believe that volley firing is the only method of maintaining fire discipline, and who will insist upon being supplied with large conspicuous targets.

I fancy that one result of the war in South Africa will be the transfer of many officers from the second to the first school of thought.

It is a mistake to think that a field-firing position can be arranged to please both schools, and that conventional can be mixed with realistic targets. The realistic targets being difficult to see, the troops concentrate all their efforts on large screens.

A man, however good his intentions, either in volleys or independent, if ordered to fire at an object he cannot clearly see, will pick out the largest and clearest object which he can see.

Last year, in Aden, I placed fifty disappearing targets in the centre of the field of fire of the brigade field-firing position. They were of the

pattern shown in Fig. 2. Those fifty targets exposed themselves more than the defenders of that position would actually have done. Although the troops came within 200 yards, the hits on those targets were three. Other targets were riddled with bullets, but these targets which I had taken such pains to make to resemble the objects met with on service had not been noticed by the troops.

From my experiences on that occasion, I think that mixed targets are a mistake, and that in the usually limited space for field firing any conspicuous fixed target draws too much fire away from the smaller targets. What is required is a large number of exactly similar targets.

I would suggest that the only targets necessary (see Fig. 3) are:—

1. *Firing line*.—Targets disappearing, chromolitho, heads and shoulders 2 feet square, at four or five pace intervals.
2. *Supports*.—Reinforcing firing line, targets disappearing, chromolitho, heads and shoulders with bodies and legs added. To be pulled up five at a time.

It will be observed that when the troops come close, the whole of the targets in 1 and 2 can be made to vanish and thus avoid that riddling of targets which generally takes place in the last stages of an attack, and vitiates the usefulness of the results as to the proportion of hits to rounds fired.

3. *Supports*, in shelter trench to the rear, represented by 2 feet square chromolitho fixed targets.
4. *Reinforcements* represented by rows of automatic disappearing targets.
5. *Guns*.—To put a target representing guns is a mistake. If guns are worked in the open under infantry fire, the detachments may be looked on as a group of infantry figure targets, it not being infantry's business to hit guns, but gunners.
6. *Targets* representing reserves, or the enemy in retreat, should not be visible till the last stage of the attack.
7. *Large targets* for volleys beyond 800 yards should be entirely distinct, and should be made to disappear as soon as independent firing commences. They should be placed so that bullets aimed at them would not hit the small targets.

The Rifleman's Difficulties.—It will be argued that such a field-firing position with targets only 2 feet square would only be suitable for an army of match-rifle shots with telescopic eyes. That the hits on it would practically be *nil*. I quite agree that about 60 per cent. of the men who usually attend brigade field firing might as well be left in quarters as waste ammunition in firing at such targets. But the remedy is not to

simplify our field-firing targets so as to enable indifferent marksmen to hit them, but to educate our men until, as I am sure is quite practicable, 80 per cent. of them will obtain great benefit from attacking such a position. I only have personal experience of the capabilities of long-service native troops armed with Martini-Henry rifles, and that experience is, that given the targets, officers very soon find means of teaching men how to hit them. It is entirely a question of practice, instruction, a supply of ammunition, and competition between units.

Now let us return to our friend the range-trained rifleman, who has constantly been practising at stationary objects at a fixed range. The first sensation (I speak from painful personal experience) he feels on suddenly being called to fire at a man or an animal at an unknown distance is a bewildering uncertainty about the correct range. He fires, and in nine cases out of ten has not the faintest idea where the bullet has gone.

The Afridi who has to pay for his own ammunition, and the hunter who does not wish to disturb his game, solve the range problem by never firing at a small target until they have succeeded in approaching so close that they have a fair chance of hitting it. The Afridi and the hunter both realise that correct range is of the utmost importance; and, recognising the extreme difficulty of obtaining a useful approximation, eliminate the chances of error and shirk the difficult problem by skill in stalking.

The musketry training of the soldier has been carried out on the assumption that on service his section commander will point out to him his target, and inform him as to its range. On the rifle range, however much he may be supposed to, he as a fact rarely ever worries his head about the range. But with an enemy using a modern rifle with smokeless powder and fighting in extended order the target is small, difficult to detect, and still harder to point out to a second person. And the soldier, as regards range, finds himself much in the situation of a man entirely ignorant of cooking suddenly informed that he must cook his own dinner.

It is evident that the moral is that each man must be taught and constantly practised in estimating his own range. That every shot he fires he must all that time be thinking what the range is, till it becomes a second nature to him. The Boer is supposed to have obtained that quality that our marksman lacks from constant practice at buck. We cannot afford buck, but vanishing targets are cheap and can be made to act (Fig. 7) much as buck do; and Fig. 4 shows a range fitted with similiar targets to the field-firing pattern.

But before proceeding further, we must disillusion our minds of the idea that any marksman, Boer or otherwise, can be trained to pick off a

man at 800 yards except by a very lucky shot. The possibility of a man on a range finding and keeping on a 3-foot bull's-eye at 800 yards is simply and solely due to the fact that the result of each shot is signalled back to him. Send that man after black-buck and he would very soon discover like other people that, without markers, to bring down a buck at 300 yards means uncommonly good shooting. My experience is that a man who is a good shot at 200 yards is a good shot at all ranges, limited only by the strength of his eyesight. By shooting I mean the ability to hold the rifle steady on the mark, and not the faculty of judging distance or allowance for wind. A marksman who is deadly at short ranges is formidable at all ranges. As ammunition is limited, every round of it should be spent in making the soldier efficient at short ranges at small targets. There is no necessity for a man who is a good shot to practise volleys except in blank.

Firing a volley with "good" shots is merely talking to the "man at the wheel" at the most critical moment. Still, to train the man at the wheel, the first thing is to teach him to steer, and not to teach him to steer while he is being shouted at. If he can steer, the amount he is disturbed by being talked to is entirely a question of his nerves and temperament. The only way to train a team in volleys, as I have often experienced, is to train them each as individuals. Every round fired in volleys on the range, when it is impossible to tell who is responsible for the misses and who is worthy of credit for the hits, is a round wasted, which might far better be spent in individual practice. When it is necessary to fire volleys, the individually trained marksman will be found to fire them as well as anybody else.

The Rifleman's Training.—The soldier's education should be carried out in three progressive stages. The first thing necessary to teach is steadiness. No man who cannot hold his rifle steady can be called a good shot. The best way to learn steadiness is to fire with a rook rifle at 50 yards at a Bisley revolver target with a 2-inch bull's-eye.

That is also the practice *par excellence* for rifle clubs; and every town in England should have a 50-yard rifle range against a wall or bank 15 feet square. No markers are required, as the shot holes can be seen with an ordinary field glass. The expenditure of £10 will start a club, with two rook rifles, and 5s. a quarter from its members will keep it going.

By means of the Kynoch-Mullineux adapter the service '303 rifle may practically be converted into a rook rifle. So, for the first stage of education in rifle shooting, the soldier and civilian members of the population will be learning to shoot under the same conditions—that is, constantly pegging away at a revolver target at 50 yards.

Any man who can make 35 out of 42 at 50 yards at a Bisley revolver target is far on the way towards being a crack shot at all ranges. He has acquired the most important quality of an expert marksman, namely, steadiness.

And in using adapter practice ammunition on a small range near his own barracks he has acquired it at half the expense and trouble to himself and to his officers that would have had to be incurred had he attained to the same degree of proficiency by practice on the rifle range.

The next stage in his training should be practice on the rifle range at targets similar to field-firing targets with service ammunition. He should first fire at targets with heads and shoulders 2 feet square till he can hit them almost every round at 200 yards.

He should then be retired 100 yards and fire at three vanishing targets, the nearest of which is 200 yards and the farthest 300 yards.

As he got proficient he should be further retired, till at last he was firing from 600 yards at targets which might appear at any distance between 300 and 600 yards from him.

But when he arrived at any range which was obviously beyond his powers, say, when he made less than 30 per cent. of hits, at that distance should he fire away all the remaining rounds allotted to him for individual practice in that year's course.

Thus, in a company, the men would be classed not by the number of points they made, but by the distance from the farthest target at which they fired their last seven rounds. Men who end at 800 yards being classed as marksmen, men at 600 yards as *first-class shots*, and so on. This system acknowledges that all men have not got equally good eyesight, and are not equally capable of holding a rifle steady, and that it is waste of ammunition for a man to be made to fire at a target he cannot see and cannot hit.

The men would next be practised at moving target by classes, the marksmen having to fire at their moving target from farther off than third-class shots.

The figure of merit for comparison with other companies could be obtained by awarding 10 points for each marksmen, 6 for first-class, 3 for second-class, and nil for an indifferent shot.

The final stage of musketry instruction would be field-firing at a position "with objects like those to be encountered on service"; to prepare them for this, the men of the company would require to be very carefully and individually trained in judging distance.

This should be done again with the field-firing vanishing target. Each target should have its distance marked on it so as to be visible to a

telescope from the central station, but not large enough to be read by eye.

At the end of such a training the company would be as fit to fire at an up-to-date field-firing position as it can reasonably be expected to be.

If the officer commanding the company wishes to fire volleys, he will find that his men can fire just as effective volleys as if they had wasted twenty rounds apiece on volley firing on the range. But the man who is least likely to waste ammunition is the man who is a good shot and knows what his rifle may be expected to hit, and what it is waste of ammunition to fire at.

I only write from personal experience, and all I know about rifle shooting has been picked up on the range and after buck, and not from books, and I entirely agree with Mr. Baillie Grohman that a large amount of our range practices are mere waste of ammunition; and I think that in the best interest of the Army it is time for officers who agree with Mr. Grohman to speak out so that the utmost benefit may be obtained from every round allowed by Government for training troops.

The ways in which ammunition can be economised are:—

1. That no man should be allowed to waste good service ammunition at a mark he cannot hit, like so many third-class shots do year after year. These men should only be allowed to fire with adapter practice ammunition till they learn to hold a rifle steady, or even with air guns.
2. That no man should be allowed to fire at a long range when he has failed to make a good score at a shorter range.
3. That no ammunition be wasted in volleys on the range. Volleys can be taught with blank.

In conclusion, I should remark that I have written throughout as a marksman, and may perhaps, like Mr. Baillie Grohman, have against me every rifle shot who believes in volleys and fire discipline being synonyms for the same thing.

But I hold with the Afridi that it is the duty of every rifleman to fire whenever he thinks he has a fair chance of hitting, and to save his ammunition when he has no target to fire at, unless he is ordered to fire. In open order formation he must use his own discretion, and he must be trained on the range and off to know what he and his rifle can do and what they cannot. And to enable a man to obtain this knowledge should be the one aim of his musketry training, as being the only efficient check against a reckless expenditure of ammunition.

Finally, I should like to protest against two popular fallacies, which are doing so much harm to rifle shooting in England:—

1. That a man who has to shoot with a Lee-Metford rifle can only learn to shoot with a Lee-Metford rifle.

2. That he must learn to shoot on a range on which he can use service ammunition.

Which is as if a schoolmaster were to declare that a child could only learn to write with a gold pen, ink worth a guinea a bottle, and on paper 50 feet square.

It is the duty of every officer to impress on the civilian population that :—

1. All modern small-bore rifles have no recoil ; and that a man who can shoot straight with a rook rifle can shoot straight with *any* rifle.
2. That the qualities of a good marksman are :—
 - a. Steadiness.
 - b. Good eyesight.
 - c. Good judgment of range, light, and wind.

That *a* can be learnt as well with a rook rifle on a 50-yard range as anywhere else.

That *b* can be as well exercised by a 2-inch bull at 50 yards as by a 3-foot one at 800 yards.

That the last place to learn *c*, except as regards wind, is on a rifle range where all the ranges are known, and that on service correct allowance for wind is largely a matter of luck. Without markers no man is a good enough shot to allow for wind correctly at a long range.

3. The man who can find a method of cheapening the cost of practice ammunition and rook rifle ammunition will be conferring an inestimable benefit upon his country.

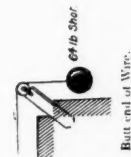
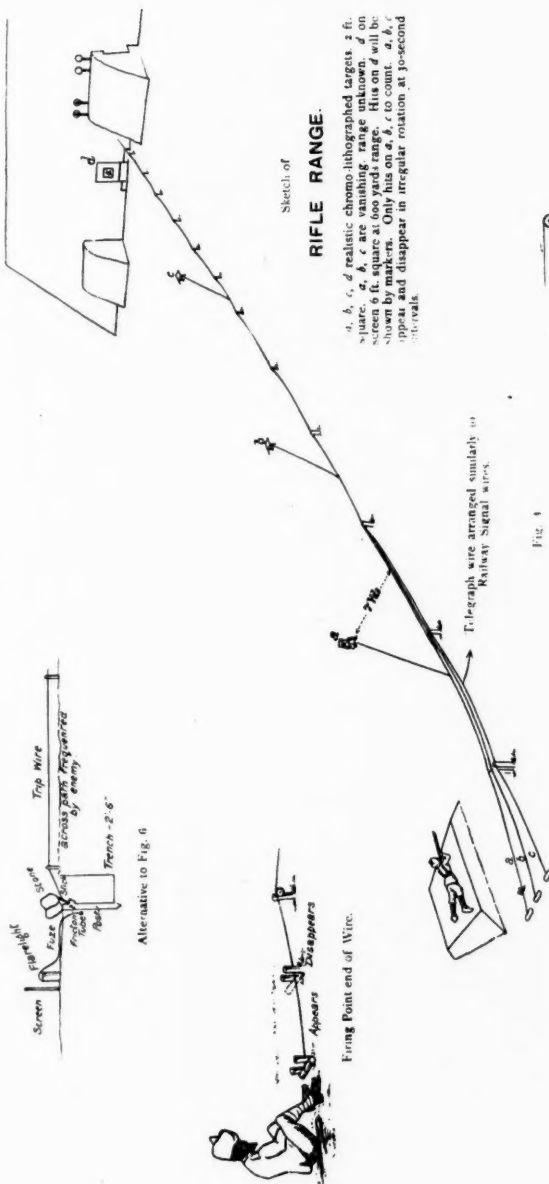


Fig. 6

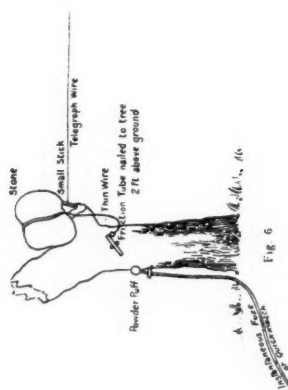


Fig. 6



Fig. 7.

SPORTING TARGET.

Teams of six men to stalk observer at B, who immediately a man exposes himself will take cover in shelter and lower flag. Team then to commence firing at target A. In one minute target will disappear. A B to be 100 yards apart. Men of another team might garish B, and not be informed of hour of attack.



Fig. 8

AUTOMATIC VANISHING TARGET.

Targets 4 ft square. *h*, stone counterweight. *p*, quickmatch. *A*, powder puff. *t*, time fuse, to burn 1 minute. *f*, lighting fuse. *p'*, cuts string, target appears. *p''*, releases stone target disappears.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Rear-Admiral—W. H. Henderson to be Admiral-Superintendent of Devonport Dockyard. Captains—H. Leah to "Terror"; C. E. Madden to "Orion"; A. W. E. Prothero to "Triumph" for Fleet Reserve at Devonport; W. J. Grogan to "Indefatigable." Commanders—G. L. Selater to "Devastation"; H. F. Shakespear to "Conqueror."

The fleet which was assembled at Spithead for the Review by His Majesty, that was to have taken place on the 28th ult., was made up from the Channel, Home, and Cruiser Squadrons, with the addition of three or four ships commissioned for other stations, the instructional destroyer-flotillas, three of the sea-going training-ships, and the training-brigs. In all, the fleet consisted of 21 battle-ships, 26 cruisers, 17 torpedo-gunboats, 28 destroyers, 3 training-ships, and 7 brigs—a total of 102 pennants, exclusive of yachts and some small special service vessels. The fleet was composed of the following more important vessels:—

First-class battle-ships—"London," "Majestic," "Magnificent," "Jupiter," "Mars,"

"Prince George," "Hannibal," "Revenge," "Resolution," "Empress of India,"

"Trafalgar," "Nile," "Sans Pareil."

Second-class battle-ships—"Anson," "Camperdown," "Benbow," "Collingwood," "Edinburgh."

Third-class battle-ships—"Devastation," "Hero," "Conqueror."

First-class armoured cruisers—"Sutlej," "Orlando," "Narcissus," "Immortalité," "Galatea," "Australia."

First-class protected cruisers—"Ariadne," "Niobe," "Hawke," "St. George."

Second-class protected cruisers—"Furious," "Hyacinth," "Juno," "Doris,"

"Minerva," "Brilliant," "Rainbow," "Melampus," "Scylla," "Retribution,"

"Andromache," "Apollo," "Severn."

Third-class protected cruisers—"Pactolus," "Prometheus," "Fantôme."

The names of the 17 gun-boats, 28 destroyers, and the training-vessels will be found on the accompanying map issued by the Admiralty, showing the position assigned to each ship.

The following foreign war-ships had also assembled:—Battle-ships.—*Germany*.—"Kaiser Friedrich III." (flag-ship of H.R.H. Prince Henry of Prussia). *United States*.—"Illinois" (flag-ship of Rear-Admiral Crowninshield). *Russia*.—"Pobieda" (flag-ship of Rear-Admiral Kasherininoff). *Sweden*.—"Oden" (flag-ship of Vice-Admiral Klintberg). *Norway*.—"Norge" (flag-ship of Vice-Admiral Sparre). *Denmark*.—"Herlof Trolle." *Greece*.—"Psara." The last four vessels are coast-defence ships of comparatively speaking small displacement. Cruisers.—*France*.—"Montcalm," (flag-ship of Rear-Admiral E. Richard). *Japan*.—"Asama" (flag-ship of Rear-Admiral Ijuen). "Takasago." *Italy*.—"Carlo Alberto" (flag-ship of Rear-Admiral C. Mirabello). *Spain*.—"Emperador Carlos V." (flag-ship of Rear-Admiral De la Matta). *The Netherlands*.—"Holland" (flag-ship of Rear-Admiral Ellis). *Portugal*.—"Dom

Carlos I." *Chili*.—Chacabuco" (flag-ship of Rear-Admiral Juan Simpson). *Austria-Hungary*.—"Szigetvar." *Argentine Republic*.—"Presidente Sarmiento." The "Montcalm," "Asama," "Carlo Alberto," and "Emperador Carlos V." are first-class armoured cruisers of modern type; the remainder are protected cruisers, the most noteworthy of which are the "Takasago" and "Chacabuco," both of which have a speed of 23 knots.

The fleet broke up on the morning of the 2nd inst., many of the foreign ships having previously left; the Channel, Home, and Cruiser Squadrons to carry out combined tactical manœuvres, lasting from the 9th inst. to the 18th inst., during which the "Nile" and "Trafalgar" are temporarily attached to the Channel Squadron. At the conclusion of the tactical exercises the Channel and Cruiser Squadrons proceed to Torbay to coal, and according to present arrangements they will leave on 31st July for a series of combined tactics with the Mediterranean Fleet; the ships of the Home Squadron will disperse to their respective stations at the end of the month after the ships have been inspected.

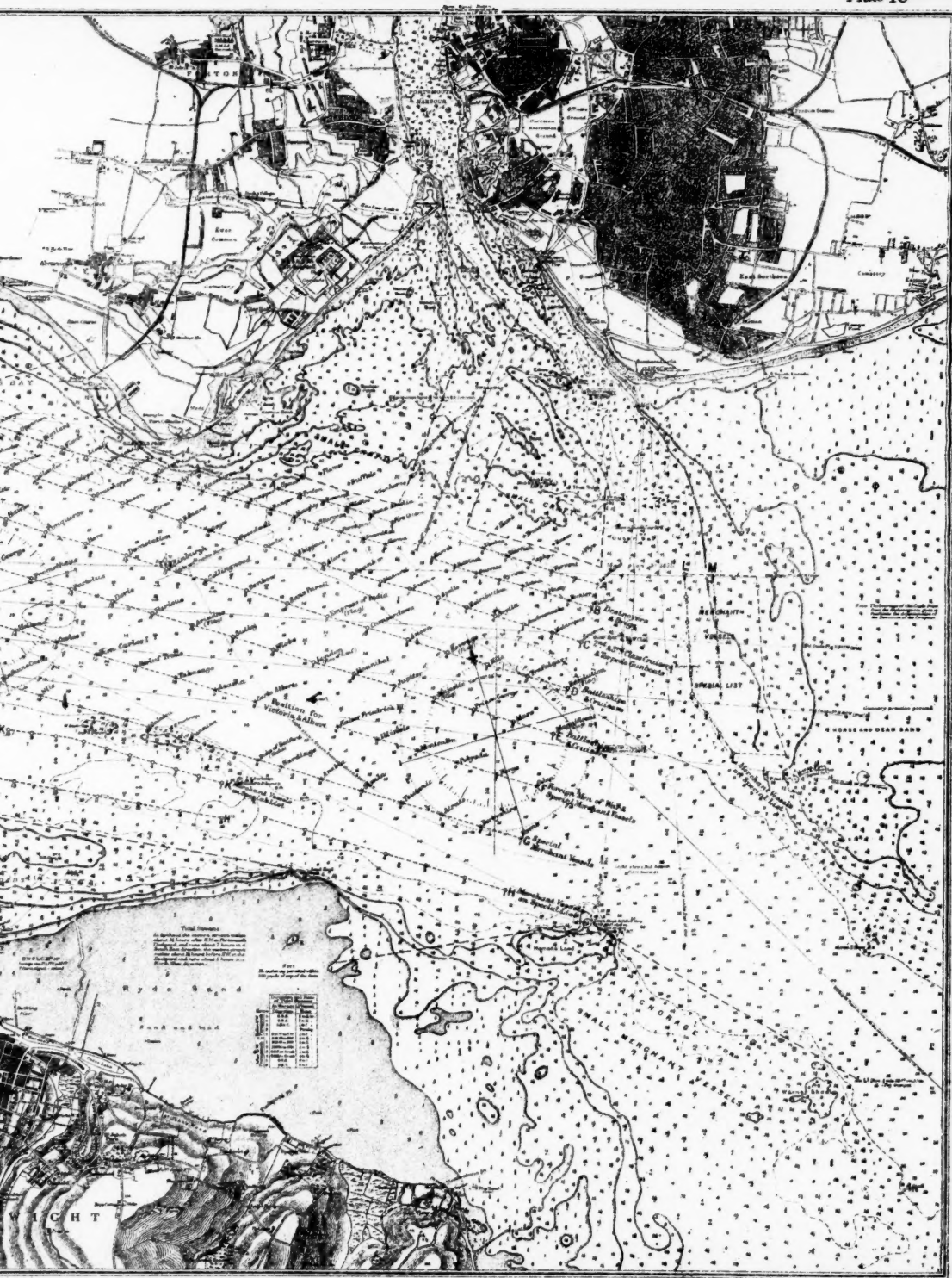
The new first-class battle-ship "London" commissioned at Portsmouth on the 7th ult. for the Mediterranean, where she will take the place of the "Royal Sovereign," which ship on her return to England will relieve the "Trafalgar" as port-guard ship at Portsmouth; the "London" left on the 3rd inst. for her station. The second-class cruiser "Arrogant" paid off at Devonport on the 4th ult., her crew being transferred to the second-class cruiser "Doris," which commissioned the same day to take her place in the Channel Squadron. The second-class cruiser "Scylla" commissioned at Chatham on the 5th ult. to convey a new crew to Bermuda for the "Tribune," a sister ship, which is to be recommissioned there for further service on the North America station. The second-class cruiser "Retribution" commissioned at Devonport on the 6th ult. for service on the North America station, where she will relieve the third-class cruiser "Psyche"; she left on the 10th inst. for her destination. The "Fantôme," one of the new sloops, commissioned at Sheerness for North America and the West Indies on the 5th ult., and left on the 1st inst. for her station.

The new first-class cruiser "Ariadne," flying the flag of Vice-Admiral Sir A. L. Douglas, K.C.B., left on the 6th inst. for Halifax, where she will relieve the first-class cruiser "Crescent." The first-class armoured cruiser "Orlando" arrived at Portsmouth on the 6th ult. from China, and will pay off at that port. The first-class armoured cruiser "Warspite" arrived at Chatham on the 11th ult. from the Pacific and paid off on the 1st inst. The second-class cruiser "Astrea" from China paid off on the 12th ult. at Chatham. The first-class cruiser "Hawke" arrived at Plymouth on the 17th ult. with the relieved crews of the second-class cruiser "Forte" and gun-boat "Partridge," which have been recommissioned at the Cape. The sloop "Icarus" from the Pacific paid off on the 4th ult. at Chatham. The second-class cruiser "Æolus" is to be commissioned to take the place of the "Empress of India" as port-guard ship at Queenstown, it having been found that the navigation of the river was impeded when the battle-ship swung with the tide. The first-class torpedo-gunboat "Dryad" has been temporarily transferred from the Mediterranean to the East Indies for service in the Gulf of Aden.

Is a Second-class or Smaller Battle-ship Desirable?—The following comment on Sir John Hopkins' lecture (May No. of JOURNAL) has been sent us by an expert correspondent:—

"The debate on the paper read by Admiral Sir John Hopkins was inadequate to the merits of the subject. Apart from certain statements of an inaccurate tendency,





important questions were passed over without discussion. Throughout the Navy, excellence of accuracy in gun-fire is admitted to be the supreme test of the efficiency of a fleet, and the larger ships will undoubtedly give the more stable platform than the smaller ships, both classes being equally well designed and proportionately armed and armoured, and the larger ships will maintain their speed in disturbed waters where the smaller ones will fall back. Two fallacies were enunciated, either of which vitiated the eloquent addresses of their respective advocates. Inward-turning propellers were not so placed on the ostensible ground of gaining increase of speed, but for facility and convenience in seating the engines; improved arrangement enables the responsible people in the engine-room to drive the machinery to their fullest power; fortunately, it is not in this country but elsewhere that neglect of this consideration has found a vitally weak spot in the complex machinery of a war-ship. A brilliant exemplar of the type we should copy was cited by the lecturer, in his somewhat exaggerated approbation of the design of the newest battle-ship of a Latin Power; that ship does not exist—except on paper—and if she does attain a sea-speed, that for which she is designed for a spurt, it is impossible that she could maintain it over the 1,000-mile course, maintained by the lecturer, and still more impossible that a second heat of the same distance could be promptly maintained. The 'Reina Elena' will not in our time travel from England to Gibraltar at legend speed, nor continue her journey to Malta in equivalent time, unless her design and weights are vastly different from those accepted as trustworthy in responsible quarters."

Launch.—At Chatham on the 27th May and at Devonport on the 19th ult. the second-class cruisers "Challenger" and "Encounter" were floated out and launched respectively. Their principal dimensions are:—Length between perpendiculars, 355 feet; beam (extreme), 56 feet; draught, forward 19 feet 3 inches, aft 21 feet 3 inches; displacement (designed), 5,915 tons; I.H.P., 12,500; speed at full power per hour, 21 knots. The machinery consists of two complete sets of vertical triple-expansion engines, having cylinders of 28 inches, 45 inches, and 52 inches diameters, and stroke of 32 inches in separate engine-rooms; each set being designed to develop 6,250-H.P. The boilers, twelve in number, of the "Encounter" are water-tube of the Dürr type, and of the "Challenger" of the Babcock and Wilcox type. They are of the unarmoured protected type of vessel, the protection consisting of an arched deck varying in thickness from 3 inches and 2 inches over machinery spaces to $\frac{3}{4}$ inch and $\frac{1}{2}$ inch at the ends, with a conning tower of steel 6 inches thick.

The armament consists of eleven 6-inch Q.F. guns, eight 12-pounder 12 cwt., six 303 Maxims, one 12-pounder 8-cwt. field gun, six 3-pounder Q.F. Hotchkiss guns, and two submerged torpedo-tubes. They will have a total complement of 499 officers and men. The coal capacity of the new cruisers is 1,225 tons.

Water-tube Boilers.—A letter from Messrs. Delaunay, Belleville & Co., to the Secretary of the Admiralty, commenting on the report of trials of H.M.S. "Hyacinth", and H.M.S. "Minerva," has been published as a Parliamentary paper [Cd. 1,119]. In the letter, which is dated from Saint Denis (Seine), 9th March, the French company say that it appears to them of the greatest importance, in view of the controversies on the subject of the efficiency of Belleville boilers, to point out the fact that the committee recognise that these boilers show greater economy than the boilers under comparison with them. They quote figures to show that the report leaves no doubt on this point. They next refer to the loss of water, a question which seemed to be "involved in a certain mystery, which has been exploited to the detriment of the Belleville boilers." The matter has now been demonstrated, they say, to be one of practice, "the solution

of which will daily become more certain and more easy in proportion as the staff, whose attention is now awakened in the right direction, acquire more experience, and the materials prepared for the joints are better fitted for their purpose." They argue, too, that the gross results of the Gibraltar run, at 7,000-H.P., make out "the 'Hyacinth's' radius of action to be 1 per cent less than the 'Minerva's,' while if these results are looked at from the boiler point of view only and allowance is made for the fact that the Belleville boilers were being used with less efficient engines, a slower hull, and a smaller bunker capacity, it is found that the advantage is very greatly in their favour." They refer also to the "choking of the ferrules of the tubes" in the "Minerva" as sufficiently serious to prevent the power from being maintained and to necessitate the abandonment of the trial while that ship still had coal available in her bunkers. In conclusion, they say :—"We beg to be allowed to point out that since the preliminary report of the committee was published in February, 1901, a whole year has elapsed, during which time, taking the British Navy alone, about 15 large ships fitted with Belleville boilers have been added to the Service, and 20 others have been kept in commission in distant seas or in active squadrons. The increasing use of these boilers appears to us not to confirm the fears of the committee, but, on the contrary, to show that, in the British Fleet, as in all others, these boilers daily justify more and more the confidence reposed in them. And, to mention only the earlier cases in which these boilers have been fitted by the Admiralty, the cruises of the "Powerful" and the trials carried out some months back by the "Terrible" have shown that Belleville boilers, after six years of use on board, and after long cruises in distant seas, are always capable of rendering the best and most reliable service, and have lost nothing of their power and usefulness."

Steam Trial.—The new first-class armoured cruiser "Drake" has just completed her contract steam trials, and in reviewing the results, says *Engineering*, chief interest attaches to the alterations made in connection with the propellers to determine the efficiency as compared with those on the sister ships "Good Hope" and "Leviathan." All three ships are alike in their model; their machinery is of the same dimensions, differing only in detail. The propellers are of the same diameter—19 feet 2 inches—and the form of blades is the same; but the pitch can be varied, and the Admiralty decided to try successive ships with the screw blades set at a different pitch in each vessel. Thus there is being obtained a series of results with full-size vessels on a problem in propulsion about which relatively little is known, although it is of first-class importance. The "Good Hope" went through her trials with her propellers set at a mean pitch of 22 feet 9½ inches. The "Leviathan" was tried with her screws at 23 feet 9½ inches, and the "Drake" had them altered to a maximum possible, with the dimensions adopted, to 24 feet 6 inches. The "King Alfred," which belongs to the same class, will shortly go upon her trials, and it is probable that she will have new propellers made so as still further to increase the pitch. The results obtained are of great importance. The increased pitch, it is considered, improved the speed, for at full power the "Good Hope" steamed 23.05 knots, the "Leviathan" 23.25 knots, and although the "Drake" only made 23.05 knots, the steering was not quite satisfactory, the ship yawing badly. The loss in slip at full speed was less, being for the "Good Hope" 18.5, for the "Leviathan" 18.5, and for the "Drake" 18 per cent. A further advantage is in the reduction of revolutions for a given speed of ship. Thus the "Good Hope's" engines had to run 126.2 revolutions, the "Leviathan" 122.1, and the "Drake" only 116 revolutions. A reduction of 80 feet per minute in the piston speed of such high-power engines is a great relief to bearing surfaces; and, other things being equal, there is here a justification for increasing the pitch. The same point applies to the results at three-fourth power; but here the slip has

increased with the increase of the pitch. The "Good Hope" had only 9·6 per cent slip, the "Leviathan" 12·8 per cent., and now the "Drake's" slip increases to 13·9 per cent.; but engineers do not require to be reminded that such an advance in slip does not necessarily mean less efficiency, as the question of frictional loss is a factor of importance. This increase in slip applies also to the low-power trials. The results are given in tabular form for all three ships in the table below. In each case the four low-power speed runs were made over the measured mile at Stokes Bay at the top of the tide; and the higher speed trials over the long deep-sea course between Rame Head and Doldman Point. The coal-consumption results were obtained on the extended trial, which was of 30 hours' duration at one-fifth and three-fourths of the power, and of 8 hours' length at full power. The "Drake," which is 14,100 tons displacement, was built at Pembroke Dockyard, and engined by Messrs. Humphrys, Tennant & Co., London.

*Mean Results of Speed Trials of H.M.S.S. "Drake," "Leviathan,"
and "Good Hope."*

Revolutions.	I.H.P.	Speed in Knots.	Percentage of Slip.	Coal Consumption.
<i>H.M.S. "Drake."</i>				
72·3	6,937	15·43	11·8	lb. per I.H.P. 1·72
105·9	23,103	22·08	13·9	1·78
116	30,557	23·05	18	1·83
<i>H.M.S. "Leviathan."</i>				
71·2	6,481	15·238	8·5	1·76
107·6	22,900	21·96	12·8	1·75
122·1	31,592	23·25	18·7	1·94
<i>H.M.S. "Good Hope."</i>				
77·5	7,953	15·91	8·4	1·87
109·1	22,467	22·10	9·6	1·83
126·2	31,088	23·05	18·5	1·92

FRANCE.—The following are the principal appointments which have been made: Rear-Admirals—J. M. Puech to be a Member of the Consultative Committee of the Navy; M. De Fauque de Jonquières for service at the Ministry of Marine. Capitaines de frégate—J. J. Kéraudren to "Salve" and *Défense-Mobile* at Brest; C. R. Nicol to "Casabianca" and *Défense-Mobile* at Tunis.—*Journal Officiel de la République Française.*

Of the two vice-admirals recently promoted to that rank, the senior, Vice-Admiral Touchard, is fifty-eight; he has been forty-two years in the Service and was eight years a rear-admiral, being the senior of his rank at the time of his promotion. Vice-Admiral Caillard is fifty-six; he has forty years' service, has been a rear-admiral for rather less than four years, and now becomes a vice-admiral, passing over the heads of eight of his seniors on the list; he has a great reputation, however, as a seaman and tactician, and was recently in command of the small squadron which occupied Mytilene, and his promotion is no doubt partly due to the tact with which he conducted the negotiations, which led to the settlement of the Franco-Turkish dispute.

Of the three new rear-admirals, the senior, De Fauque de Jonquières, is fifty-two, he has thirty-five years' service, has been rather more than nine years and a half a captain, and he reaches his flag over nine of his seniors. Rear-Admiral Germinet is fifty-six, he has forty years' service, six and a half of which as a captain, and he goes over the heads of twenty-two of his seniors. Rear-Admiral Boué de Lapeyrière, the junior, is also the youngest, as he is only just fifty, he has thirty-three years' service, has been not quite six years a captain, and obtains his flag over the heads of twenty-seven of his seniors.

Vice-Admiral Gervais, who has been appointed to the Command-in-Chief of the Manceuvre Squadron, has selected Rear-Admiral Ponty as his Chief of the Staff with Capitaine de vaisseau Simon and Capitaine de frégate Bô as his principal A.D.C.'s; the Admiral hoisted his flag on board the first-class battle-ship "Bouvet" on the 7th inst. at Toulon.

Vice-Admiral De la Bonninière de Beaumont, who will succeed Vice-Admiral de Maigret in September in command of the Mediterranean Squadron, has selected Rear-Admiral Jauréguiberry as his Chief of the Staff, and Capitaine de Vaisseau Sauvan as flag-captain.

The Naval Manœuvres.—The Manceuvre Fleet this year is composed as follows:—

1. The Mediterranean Squadron, consisting of two battle-ship divisions of the Active Fleet, the Cruiser Division, and the Reserve Division.

2. The Northern Squadron, consisting of the battle-ships of the Atlantic Fleet with the armoured cruisers "Montcalm" and "Dupuy de Lôme" and the torpedo-boat destroyers. The other cruisers of the fleet are in the West Indies and on the North American coast. The "Montcalm" is only attached provisionally to the fleet.

The ships taking part in the Manœuvres will be the following:—

First-class battle-ships—"Bouvet," "Saint Louis," "Iéna," "Gaulois," "Charlemagne," "Jauréguiberry," belonging to the Active Squadron of the Mediterranean.

"Masséna," "Carnot," and the second-class battle-ships "Brennus," and "Hoche," of the Mediterranean Reserve Division.

The first-class battle-ship "Formidable," with the coast-defence battle-ships "Bouvines," "Jemmapes," "Amiral-Tréhouart" and "Valmy," and the third-class battle-ship "Courbet," belonging to the Atlantic Fleet.

First-class armoured cruisers—"Pothuau," "Chanzy," "Latouche-Tréville," of the Active Squadron of the Mediterranean; the "Charner" of the Reserve Division, with the "Dupuy de Lôme" and "Montcalm" of the Atlantic Fleet.

Second-class cruisers—"Du Chayla," "Cassard."

Third-class cruisers—"Galilée," "Linois."

Torpedo-Avisos—"Dunois," "La Hire," of the Mediterranean Squadron; and the following destroyers of both squadrons, viz., "Durandal," "Yatagan," "Fauconneau," "Pique," "Épée," "Hallebarde," "Epingole," and the torpilleur-de-haute-mer "Flibustier." Making a grand total of 16 battle-ships, 10 cruisers, and 10 torpedo-vessels.

The Northern Squadron, under the command of Vice-Admiral the Marquis de Courthille, left Brest for Lisbon on the 30th ult., at which port the Vice-Admiral received his final orders from Vice-Admiral Gervais as to his junction with the Mediterranean Fleet.

The Active Squadron of the Mediterranean Fleet, with the exception of the "Bouvet" and "Hallebarde," left Toulon on Thursday, 3rd July, in the morning for Algiers; when off the Barlecaric Islands the Cruiser Division, under Rear-Admiral

Boutet, together with the torpedo flotilla, with the exception of the "Dunois," which remained with Vice-Admiral Maigret, was detached with orders to proceed independently to Oran: after coaling at Oran the division weighed on the 7th inst., and proceeded to meet the Northern Squadron, which will remain off Oran from the 11th to the 15th inst. On the 5th inst. the two battle-ship divisions parted company, the first proceeding to anchor off Algiers, the second off Mers-el-Kebir.

Vice-Admiral Gervais will arrive at Oran on the 12th inst. The battle-ships "Brennus," "Masséna," "Carnot," and "Hoche," of the Reserve Division, after completing to their sea-going effective strength with reservists, will leave Toulon for Algiers on the 14th inst., and will stay there for the fêtes of 14th July. The operations between the different divisions of the fleet will take place during the second half of July, the field of manoeuvres being between Oran and Bizerta in the first place, the concentration of the fleets taking place off Bizerta, when Vice-Admiral Gervais will take the opportunity of inspecting the new harbour works at that port, and then in the waters adjacent to Corsica, the fleet returning to Toulon about 6th August, when it will coal and fill up with stores.

Return of the "Gaulois."—The first-class battle-ship "Gaulois" arrived at Toulon from Boston at 6 p.m. on the 14th ult., with Vice-Admiral Fournier, General Brugère and the other members of the mission which was sent to the United States to represent France at the Rochambeau fêtes. The admiral struck his flag at 9 o'clock the following morning. On her return voyage the "Gaulois" averaged 14·7 to Lisbon, and 15 knots from Gibraltar to Toulon.

Ajaccio.—The plan for creating a military port at the harbour of Ajaccio has been approved by the Inspector-General of Maritime Works; the Navy is to definitely take over the anchorage of Cannes, situated at the head of the bay, on the understanding that the Navy department will build a pier 200 metres (656 feet) long at right angles to the line of quays, as a shelter for fishing-boats against the south-east wind.

The Port of Ajaccio will then be divided into three parts—the Citadel anchorage for deep-draught vessels, the Capucins anchorage for fishing-boats, and the Cannes anchorage for vessels of war.

New Training Schools.—It has been previously mentioned in these Notes that the falling off in the numbers of men available by the *Inscription Maritime* for manning the French Navy was causing a good deal of anxiety. As a tentative remedy it has been decided to start at some of the chief mercantile ports what are called "*Ecoles professionnelles maritimes*." The first of these has just been installed at Bordeaux, on board the old transport "Magellan," moored in the Garonne; Capitaine de vaisseau Poidloué has been appointed in charge, and the municipality of Bordeaux are co-operating. The "Magellan" can accommodate 400 boys. The age at entry will be between 13 and 15 and the course will last 4 years; at its conclusion those who obtain a "brevet simple" will be drafted to the fleet as seamen, and those who obtain a "brevet supérieur" will embark for six months in a special vessel and then join the fleet as petty officers. There will also be a chance for the most intelligent to rise to officer's rank either as engineers or aspirants.

Submarines.—Two mishaps occurred recently on board submarine boats of the submergible type. The first was on board the "Silure." After she had been submerged for 2 hours the helmsman and two others of the crew were seized with syncope and became insensible. The officer in charge immediately caused the boat to rise to the surface and opened her up for thorough ventilation and returned into harbour at once; the men soon recovered consciousness. It is supposed they were asphyxiated by

carbonic-oxide gas, the product of the combustion of the petroleum fuel used for surface steaming, which had not completely disappeared before submersion was effected, though this is the first time anything of the kind has happened. The second accident took place on board the "Triton" and was caused by the bursting of a boiler tube, by which an officer had his face and hands scalded. — *Le Yacht* and *Le Temps*.

The Report of M. Lockroy on the Naval Budget for 1902.—The Report presented to the Chamber of Deputies by M. Lockroy, who has himself been twice Minister of Marine, is a more voluminous document than usual, and contains a good deal of interesting information. M. Lockroy draws attention in the first place to the steady process of disintegration at the Ministry of Marine, which has been going on for some years, by which the Navy is being gradually deprived of some of its most responsible duties. The control of the colonial forces has recently been taken from it, and now the defence of the coast, which, in every other European country, is in the hands of the Navy, has been transferred to the Ministry of War; the administration of the mercantile marine is also to be transferred to another department, and it has even been suggested that the Maritime Prefectures should be suppressed and the Ministry of Marine itself should be merged in that of War. M. Lockroy holds that provided the colonial force is kept absolutely as a distinct entity from the Regular Army, it is not absolutely necessary that it should be under the control of the Minister of Marine; but that to confide the defence of the coast and of the dockyards to any other hands than that of the Navy, would, in time of war, constitute a grave national danger.

"Germany," proceeds M. Lockroy, "on the advice of Moltke, did not hesitate, as soon as possible after the war of 1870, in relieving her victorious army of the burden of the defence of the coast. Italy and Austria followed suit, it being recognised that only seamen were properly capable of recognising their own from an enemy's ships, and also of devising and baffling an enemy's plans. A battle between land and sea is only one form of naval warfare, and on this point Gambetta fully shared the views of the German field-marshal.

"Unfortunately, a theory is abroad, thanks to the propaganda of certain public men, which has found favour with the public, that it would be well to suppress the Minister of Marine in favour of the War Minister, who would then become the Minister of National Defence. The removal of the coast defence from the Navy, and the menace against the Maritime Prefectures have seemed decisive steps taken in that direction; but nothing could be more opposed to the interest of the country. War on land and war at sea are two very different things, and although the general principles are the same, they require quite different aptitudes for carrying them out. It is a sufficiently heavy task for one man to watch over the safety of our frontiers, to guard the Vosges, Alps, and Pyrenees, without having also the defence of our sea frontiers on his shoulders, and to fight the enemy's fleet on every ocean. What head could efficiently carry out the double duty, and who, after our disasters, would dare to assume it—in fact, as Jules Simon once said in one of his admirable speeches: Where is the man?

"Nowhere else in Europe has so wild an idea entered the human brain. In England, Germany, and Italy every effort is made, on the contrary, to specialise men's aptitudes and intelligence. The great economic principle of the division of labour has become, north and south, the base of military organisation. The merging into one of two duties of which the complete separation is required for the national security, is rightly regarded as a public calamity. I do not wish to say that the two Services ought not to be in touch with each other, or should not mutually co-operate. On the contrary. But neither should trench on the other's domain."

M. Lockroy excuses himself for having drawn attention to this matter, but the new views had made considerable progress among even their colleagues, by whom the transference of the Colonial troops to the Minister of War was looked upon as a first victory; and one result was that the Navy had already been partly ousted from the control of some of the *points d'appui* of the fleet, which ought to be in its hands alone. There were now three Ministers—the Ministers of War, Marine, and the Colonies—all claiming to have a voice in the management of these stations, all disagreeing with and jealous of each other, and a state of paralysis has set in. Already, almost everywhere, all work on the defences has been suspended, with the exception of Bizerta, where, thanks to the energy of the naval commandant alone, it was still being pushed on. At Diego-Suarez, the Navy, in spite of incessant demands, could obtain neither boats nor even a site for the erection of storehouses and the construction of a dock; the war *matériel* sent out there in 1898, is still lying on the beach without cover, and is in all probability ruined. The batteries at Cape Saint Jacques in Indo-China have been waiting for their armament for more than a year, because the Minister now in charge of them has no means of providing proper gun-carriages.

Turning to the question of new constructions, M. Lockroy points out that no sooner had France commenced the construction of the new 14,800-ton ships, than England decided to lay down still more powerful vessels of 17,000 tons displacement. As England can spend far more on her Fleet than France can, it is certain that she can build not only better armed and better protected vessels than the French, but also a much larger number. He holds that France must concentrate in the Mediterranean all her ships of the first line, because it is only in those waters that she may possibly at certain times find herself superior in number to her future enemies. The cruisers ought to be concentrated in the Channel, supported by a small squadron of the older battle-ships, which was the decision arrived at by the Superior Council of the Navy, when it was called upon for the first time to give an opinion on the proper redistribution of the Fleet. It is necessary, however, that the Squadron of the North should be homogeneous, instead of being composed, as it is now, of ships of unequal speed and of different types. Homogeneity in a squadron is to-day of the first importance, and abroad the greatest stress is laid on this point. Germany has considered it better to renounce for a time certain improvements, easily realisable, in the ships under construction, so as not to break, although only for a time, uniformity in construction. The German and English battle-fleets are completely homogeneous, the ships being of similar types, alike in armour, armament, and speed.

M. Lockroy then calls attention to the dissatisfaction existing in the ranks of the artificers of the Fleet, owing to the inadequacy of their pay, pointing out that the complaints of the petty officers and men in question were reasonable and could no longer be ignored, and that the similar class of men who worked in the dockyards had lately received a considerable augmentation of both their regular pay and their pensions.

Coming next to the details of the Budget, M. Lockroy points out that the cost of ships has in recent times increased tenfold, everything having become more costly; *points d'appui* for the Fleet in all parts of the world have become necessary, while at home the dockyards and workshops have had to be brought up to date at vast expense, new machinery for all departments being required; it has become therefore a matter of the first importance to cut down all unnecessary expenses, for money in these days is as much an arm of national defence as the gun and torpedo, and must be looked after as carefully. The power of a Navy depends in a great measure on how the money voted is expended. Tactical finance, like strategy, must be learnt. Italy with

small means manages to construct strong squadrons, while Germany, spending less than France, is constructing a fleet which will soon be one of the most powerful in Europe; England by a series of administrative reforms has notably reduced what may be called the "*parasitic*" expenses. The tendency of all Parliaments is now, while increasing the credits devoted to national defence, to ruthlessly cut down what are vulgarly called "*State expenses*."

To estimate rightly whether the money voted for the Estimates is properly expended, M. Lockroy compares them with the English, Italian, and German Naval Budgets, as far as it is possible to make such a comparison, which is not altogether easy, owing to the different way in which the Estimates are framed in those countries; and he points out with justifiable pride that the French Naval Estimates, as presented to the Chamber, give far more information, and are more precise, than those of other countries, even of England. Still a general comparison is possible, as the total amount of the Budget is known, and the principal sources of expenditure cannot be kept secret; with a little trouble, therefore, the accessory expenses, as compared with those directly devoted to the maintenance of the Fleet in a state of preparation for war, can be arrived at.

The money expended on preparation for war (proper) can be summed up under three heads:—

1. Ships in commission (squadrons, naval divisions, local stations, and single ships).
2. Ships under construction.
3. Works (construction of the necessary dockyard works, harbour works, and coast batteries).

All details connected with these can be ascertained from foreign Estimates, as from the French, and furnish matter for comparison, with the exception of commissioned ships, a list of which alone appears in the French Estimates; however, this information can be obtained from the Intelligence Department. In some quarters the opinion is held that the money devoted to "*Works*" should appear under the heading of "*General Expenses*," but this seems wrong, as it is an undoubted fact that the dockyards are an essential part of the machinery necessary for maintaining the Fleet and that *ports d'appui*, such as Malta, Gibraltar, Bizerta, Maddalena, Hong-Kong, Kiau-Chau, etc., double and treble the value of the squadrons of the Powers which possess them.

Taking the Budgets of the three Powers already named, M. Lockroy finds, after deducting subsidies to the mercantile marine and civil and military pensions, that the amount of the Italian Budget stands at 107,880,909 francs (£4,315,236), divided as follows:—

Naval Power (represented by Ships in		Frances.	
Commission)	54,100,000	= (£2,164,000)	
Ships under Construction	24,000,000	(£960,000)	
Works	1,625,000	(£65,000)	
Leaving Balance for General Expenses...	28,155,909	(£1,126,236)	
Total	107,880,909	(£4,315,236)	

Which gives the following percentage:—

	Per cent.
Naval Power	50.18
Ships under Construction	22.26
Works	1.51
General Expenses	26.05

100

In England the Estimates, with the pensions deducted, amount to 745,300,000 francs (£29,812,000), divided as follows :—

Naval Power (represented by Ships in				Franks.	
Commission)	...	...	...	334,700,000	=(£13,388,000)
Ships under Construction	...	...	...	225,100,000	(£9,004,000)
Works	...	...	...	25,500,000	(£1,020,000)
Leaving balance for General Expenses...	...	...	...	160,000,000	(£6,400,000)
Total	...	...	...	745,300,000	(£29,812,000)

Which gives the following percentage :—

	Per cent.
Naval Power	44·90
Ships under Construction	30·20
Works	3·42
General Expenses	21·48
	100

In Germany the Budget amounts to 251,720,715 francs (£10,068,828), expended as follows :—

Naval Power (represented by Ships in				Franks.	
Commission	...	...	...	73,800,000	=(£2,952,000)
Ships under Construction	...	...	...	128,734,000	(£5,149,360)
Works	...	...	...	15,000,000	(£600,000)
Leaving balance for General Expenses	...	...	...	34,186,715	(£1,367,468)
Total	...	...	...	251,720,715	(£10,068,828)

Which gives the following percentage :—

	Per cent.
Naval Power	29·12
New Ships under Construction	51·29
Works	5·97
General Expenses	13·62
	100

In France the Budget, with pensions, etc., deducted, amounts to 300,421,251 francs (£12,016,850), divided as follows :—

Naval Power (represented by Ships in				Franks.	
Commission)	...	...	...	70,046,289	=(£2,801,852)
Ships under Construction	...	...	...	113,627,555	(£4,545,102)
Works	...	...	...	17,153,630	(£686,145)
Leaving balance for General Expenses	...	...	...	99,593,777	(£3,983,751)
Total	...	...	...	300,421,251	(£12,016,850)

Which gives the following percentage :—

	Per cent.
Naval Power	23·35
Ships under Construction	37·82
Works	5·71
General Expenses	33·12
	100

It will thus be seen that Italy takes the lead in keeping her Fleet in readiness for war, spending no less than 50·18 per cent. of her Estimates on her ships in commission ; England coming next with practically 45 per cent. ; then Germany with 29·1 per cent., while France comes last with only 23·3 per cent.

In the construction of new ships, Germany comes first, spending 51·2 per cent. of her Estimates ; France comes next with 37·8 per cent. ; England with 30·2 per cent., and Italy with 22·2 per cent.

On works, Germany takes the lead, spending 5·97 per cent. ; France comes next with 5·71 per cent. ; England 3·42 per cent., and Italy with 1·51 per cent.

It is only when we come to the general or parasitical expenses that we find France takes the lead, and a long lead, expending 33·12 per cent. in this way, as against 26·05 in Italy, 21·48 in England, and only 13·6 per cent. in Germany.

Such a state of things is very serious and requires the closest attention of those interested in the power of the country, its future, and its defence. Little by little France is losing her place as the second great naval Power. Yet, with her Budget of 300,000,000, were this sum only properly expended, and the enormous extraneous expenses cut down, which at present are absorbed and lost, no one knows how, she could easily retain her high position on the seas.—*To be continued.*

GERMANY.—The following are the principal appointments which have been made : Rear-Admirals—Fritze to command of the Second Squadron to be formed for the Manœuvres ; Galster to be Second-in-Command of the Second Squadron. Kapitän zur See—von Müller to "Mars" for the Manœuvres ; Büllers to be Chief of the Staff of the North Sea station ; Scheder to "Vineta" and to Commodore in command of the American Division. Fregatten-Kapitän—Peters to be Chief of the Staff of the Second Squadron.

The Kaiser, having placed King Edward *à la suite* of the German Navy, issued the following order to the fleet at Kiel on the 26th ult., by flag signal :—

"Edward, King of England, has been pleased to accept a position *à la suite* of my Navy. I hope the fleet will always be mindful of this high honour, which at the same time brings it into closer relations with our comrades of the British Navy. The fleet is immediately to hoist the British flag at the mast-head, and fire a salute of 21 guns. Three cheers for the King of England."

The Emperor's command was at once carried out by the war-ships lying in the harbour.

On the next day the Emperor William communicated to the German fleet by flag signal the following message from King Edward with reference to his appointment *à la suite* of the German Navy : "I am deeply touched by your kind thought, and am proud to be an admiral in your fleet."

The other Crowned Heads and Princes who are *à la suite* of the German Navy are :—The Tsar ; the King of Sweden and Norway ; the King of the Belgians ; the Arch-Duke Charles Stephen of Austria ; the Grand Dukes Alexis and Cyril of Russia ; Prince Louis of Savoy, Duke of the Abruzzi ; Prince Thomas of Savoy, Duke of Genoa ; and the Prince of Wales.

Loss of Torpedo-boat S 42.—An unfortunate collision occurred on the 24th ult. between torpedo-boat S 42 and the English steamer "Frisby" off Lightship No. 4, at the mouth of the Elbe, which resulted in the sinking of the torpedo-boat and the loss

of her commander, Lieutenant Rosenstock von Rhoebeck, two petty officers, and three others of her crew. The torpedo-boat was returning from Heligoland to Cuxhaven after the conclusion of the yacht race for the Kaiser's Cup, run between Dover and Heligoland, and was bringing back Sir E. Birkbeck and three other English gentlemen. Immediately after the collision the commander, when issuing orders for the safety of his men and passengers, directed that the Englishmen were the first to be taken into the boat, which was done. His Majesty King Edward sent the following telegram to the Kaiser :—

“London, Saturday.

“The Emperor-King, Kiel.

“I have only just heard with deep regret of the sad accident which happened to your torpedo-boat at Cuxhaven, involving the loss of her commander and some of her crew. I deeply appreciate that the last command given by Lieutenant Rosenstock von Rhoebeck before he was drowned should have been that the Englishmen were first to be taken into the boat.—Edward R.”

The Emperor William replied as follows :—

“Kiel, Sunday.

“His Majesty the King, Buckingham Palace, London.

“Deeply touched by your gracious message of kind sympathy. I immediately communicated it to the fleet by signal. Every officer, non-commissioned officer, and man is profoundly sensible of the fact that the first act of our new admiral should have been a message so kindly worded. They beg to express their sincerest thanks, and with me join their prayers to those of your fleet for the complete restoration of your precious health.—William I.R.”

S 42 was not a new boat, as she was one of forty-five built by the Schichau firm at Elbing, and was launched in 1889, her dimensions being :—Length, 150 feet ; beam, 15 feet 6 inches ; displacement, 153 tons, while her engines developed 1,800-I.H.P., giving a speed of 22 knots ; her armament consisted of two 1-pounder Q.F. guns and two torpedo-tubes.

Strength of the Officers' Corps.—According to the May Navy List, the numbers of officers of the military branch are as follows :—4 admirals ; 7 vice-admirals ; 13 rear-admirals ; 55 captains ; 119 commanders ; 222 captain-lieutenants ; 484 lieutenants ; 530 midshipmen ; and 201 cadets. These numbers differ somewhat from the numbers of the different ranks which appear in the year's Estimates. The officers of the Marine Infantry number :—1 lieutenant-colonel in command ; 4 majors ; 21 captains ; 15 first and 38 lieutenants. The number of completed ships stands at :—14 battle-ships ; 8 coast-defence ships ; 13 armoured gun-boats ; 11 large and 28 small cruisers ; 6 gun-boats ; 15 training-ships ; 8 special service and 4 harbour ships.

The Manœuvre Fleet, 1902.—Admiral von Koester, the Commander-in-Chief at Kiel and General-Inspector of the Navy, has been again appointed to the command of the fleet which is to assemble for the annual Grand Manœuvres about the middle of August : he has selected Captain von Breusing as his Chief of the Staff, and will hoist his flag on board the first-class battle-ship “Kaiser Wilhelm II.” The following vessels will be specially placed at the disposal of the Commander-in-Chief, but they really form the Scouting Division of the fleet, viz. :—

First-class armoured cruiser—“Prinz Heinrich.”

Second-class protected cruisers—“Victoria Luise,” “Freya.”

Third-class protected cruisers—“Amazona,” “Niobe,” “Hela.”

Gunnery training-ship—“Grille.”

The First Squadron will consist of the following ships :—

First Division.

First-class battle-ships—"Kaiser Friedrich III." (flag-ship of H.R.H. Prince Henry of Prussia, commanding squadron), "Kaiser Wilhelm der Grosse," "Kaiser Karl der Grosse."

Second Division.

First-class battle-ships—"Kurfürst Friedrich Wilhelm" (flag-ship of Rear-Admiral von Prittwitz u. Gaffron), "Brandenburg," "Weissenburg," "Kaiser Barbarossa."

The Second Squadron will be composed of two third-class battle-ships of the "Sachsen" class, and four of the coast-defence battle-ships of the "Siegfried" class; and according to present arrangements it will be composed as follows :—

Third-class battle-ships—"Baden" (flag-ship of Rear-Admiral Fritze, Commanding Squadron), "Württemberg."

Coast-defence battle-ships—"Hildebrand" (flag-ship of Rear-Admiral Galster), "Heimdall," "Hagen," "Beowulf."

There will be in addition two torpedo-boat flotillas, of which the first was formed on the 1st April, and the second will be organised on the 1st August from the boats of the Reserve Divisions already in commission. The first flotilla will consist of eleven of the new sea-going torpedo-boats; the second of five of the new boats, six of the older Schichau boats, and a division boat as flag-ship. The number of officers and men in the fleet will be 10,900.

The coast-defence battle-ship "Ægir," belonging to the Reserve Division of the Baltic, has been paid off and sent to Danzig, where she will be lengthened similarly to the "Hagen"; her crew has been transferred to the "Heimdall," a sister ship. The "Frithjof," another of the class, is to be taken in hand for the same purpose at the Imperial Dockyard, Kiel.

The Gunnery-school Division will be materially strengthened by the addition of the large second-class cruiser "Freya," a comparatively new vessel of 5,630 tons, with a complement of 465 officers and men. Originally the school consisted only of the "Mars," a vessel of 3,320 tons, built in 1877, which was armed with the different types of gun in use; since then the ships in the division have been continually added to, the "Freya" bringing the number up to eight, three of these, however, are only small tenders although they are all sea-going.

New Ships and Dockyard Notes.—The new first-class cruiser, which is to take the place of the old "Kaiser," and for which a first vote has been taken in this year's Budget, has been taken in hand at the Imperial Dockyard, Kiel. The new ship, like her sister the "Prinz Adalbert," will be 396 feet long between perpendiculars, with a beam of 63 feet 9 inches, and a displacement of 9,050 tons on a mean draught of 24 feet; the displacement of the "Prinz Heinrich," the first of the class, being 8,870 tons. The ship will have three screws, and the engines are to develop 17,000-I.H.P., to give a speed of 21 knots. The armament will consist of four 21-cm. (8·2-inch) Q.F. guns in barbettes, two forward and two aft; ten 15-cm. (5·9-inch) Q.F. guns; twelve 8·8-cm. (3·4-inch) Q.F. guns; ten 3-pounder Q.F., and four machine guns, with four submerged torpedo-tubes. The complement of the "Prinz Heinrich" is 500 officers and men, while that of the new ship is to be 550.

The three first-class battle-ships of the 1899 programme are now approaching completion. These are the "Wittelsbach," under construction at the Imperial Dock-

yard at Wilhelmshaven; the "Wettin" at the Schichau Yard at Elbing, Danzig; and the "Zähringen" at the Germania Yard, Kiel. It cannot be stated definitely when the trials of the ships in question will begin, but it is probable that both the "Wittelsbach" and "Zähringen" will be commissioned in the early autumn for that purpose. When ready these ships will take their place in the First Squadron, when the "Kurfürst Friedrich Wilhelm," "Brandenburg," and "Weissenburg," which have been in continual commission both in home waters and in China for nearly ten years, will be paid off for a thorough overhaul, new boilers and refit. The crew of the flag-ship "Kurfürst Friedrich Wilhelm" will probably be transferred to the "Wittelsbach," while the crews of the "Brandenburg" and "Weissenburg" will also in due course be transferred to two of the new ships. Next year the two other ships of this class, the "Mecklenburg" building at the Vulcan-Stettin Yard, and the "Schwaben" at the Imperial Dockyard, Kiel, should also be ready for their trials, the first named in March and the last in November, 1903; they form part of the 1900 programme. These five ships are an improvement on their five immediate predecessors of the "Kaiser" class, being some 16 feet longer, with a displacement of 11,800 tons, as against 11,150 of the earlier ships, and an increase of 2,000-I.H.P. in the engines, raising their speed from the 18 knots of the "Kaiser" to 19.

Of the four new battle-ships of the 1901 and 1902 programmes, two, "H" and "L," are being built in the Germania Yard at Kiel; one, "J," at the Schichau Yard; and the fourth, "K," at the Vulcan-Stettin. These ships will be far the largest yet constructed for the German Navy, as they have a length of 398 feet 6 inches, a beam of 72 feet 10 inches, and a displacement of 13,000 tons, while, as we stated on a previous occasion, the heavy armament will consist of four 40-calibre 28-cm. (11.02-inch) so-called Q.F. guns, as they are reported to have a rate of fire of 90 seconds, the weight of the projectile being 760 lbs., with a muzzle velocity of 2,661 foot-seconds. It is doubtful if any of these ships will be ready for launching this year.

Kiel has now without doubt established its claim to being the most important of the German coast towns from the shipbuilding point of view, as in addition to the Imperial Dockyard there are now two important and thriving private yards, and six war-ships, of which three are first-class battle-ships, are being constructed between them. The capacity of the Imperial Dockyard for ship construction is somewhat limited at present, as the harbour being the headquarters of the principal part of the fleet, the dockyard has a great deal of heavy work to do in repairs. While at Wilhelmshaven only battle-ships are built, at Kiel the dockyard is devoted to armoured cruisers, all of which from the "Fürst Bismarck" onward have been, or are being, constructed there. The Germania Yard, which a few years ago was purchased by the great Krupp firm, is rapidly developing into a yard of the first magnitude with all the machinery and appliances on the latest and most approved models; three first-class battle-ships are at present under construction there, of which one, the "Zähringen," that was only launched on 12th June last year, is now nearly ready for her trials. To have completed the internal fittings, fixed the armour, and set up all the machinery of a ship of that size in a little over twelve months, is work of which any dockyard may well be proud. The firm has also six of the new torpedo-boats in hand, two of which are afloat, the other four being still on the stocks. Of the two afloat, one, G 108, has recently concluded her steam trials most satisfactorily. At her three hours' run under forced draught, between Hela and Brusterot, a mean speed of 29.13 knots was maintained; while the mean of six runs on the measured mile off Neukrug was 29.6 knots; the engines worked well, and there was no appreciable vibration. The remaining five boats, from G 108 to G 113, will also when ready make

their trials in the Bay of Danzig. The work of the adjoining Howaldt's yard has up to the present been confined to small ships, and the new third-class cruiser "J," a sister ship to the "Frauenlob" and "Arkona," is being built there; but considerable additions are to be made to the yard, which in the near future will enable it to undertake much heavier work.—*Neue Preussische Kreuz-Zeitung* and *Mittheilungen aus dem Gebiete des Seewesens*.

UNITED STATES.—*Forthcoming Manœuvres in the West Indies*.—The Navy Department of the United States has issued orders for the assembling next winter of the vessels of the North Atlantic, South Atlantic, and European stations, to participate in the most extensive fleet manœuvres ever attempted by the Navy in the West Indies. The orders recite that about 15th November next the department will assemble all available vessels of the stations named, and about 1st January, 1903, these vessels will be gathered at Culebra, Porto Rico, or Guantanamo, Cuba, and organised and drilled for two months as a fleet.

The commanders-in-chief of the three stations are given special orders to govern their respective commands. Rear-Admiral Higginson, commanding the North Atlantic station, is directed to assemble his vessels at Hampton Roads, Va., about 15th November, and proceed to the scene of the manœuvres. He is directed to hold drills in the meantime with a view of inspiring healthy rivalry between guns' crews, to encourage officers and men to invent appliances to quicken ammunition handling and the loading of guns, to do away with tiresome lectures to the enlisted men, and to pay special attention to gun-pointing—all this is to increase the efficiency of the squadron, and discover which of the officers and men are able to handle the ships to the best advantage in the manœuvres.

Rear-Admiral Sumner, commanding the South Atlantic station, is directed to assemble his vessels at Bahia, Brazil, not later than 5th December, fill with coal, and report his readiness to sail north with vessels, coaled and provisioned, by 12th December. Admiral Sumner also is directed to institute a system of progressive drills in order to bring his squadron up to the highest possible point of proficiency.

Rear-Admiral Crowninshield is charged to gather the vessels of the European station at Gibraltar not later than 25th November, to coal there, and then proceed on 10th December to the Cape Verde Islands, where the vessels will coal again, and be in readiness to leave for the West Indies on 15th December. From the receipt of the orders up to the time of departure for the manœuvres the vessels of the squadron are expected to hold regularly such drills as will best fit them for the big evolutions.

The naval bureaus of equipment, steam engineering, construction, and ordnance have received special directions to see the vessels of the great fleet have supplies of clothing and provisions, and are in thorough repair in time for the manœuvres. The list of vessels which will take part is as follows:—"Kearsarge," "Iowa," "Massachusetts," "Brooklyn," "Illinois," "Alabama," "Indiana," the new "Maine" (probably), "Olympia," "Baltimore," "Cincinnati," "Raleigh," "Albany," "Chicago," "San Francisco," "Newark," "Atlanta," "Detroit," "Montgomery," "Nashville," "Marietta," "Machias," and as many of the half hundred or more torpedo-boats and destroyers as are available at the time, and a fleet of naval colliers.—*Army and Navy Journal*.

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR JUNE, 1902.

Major-General F. W. Ward, C.B., R.A., to be Colonel-Commandant of the Royal Regiment of Artillery. Lieut.-Colonel T. Stock from the Essex Regiment to be Colonel to command the 44th Regimental District (the Essex Regiment). Lieut.-Colonel and Brevet Colonel H. S. Harrison from the Staff in South Africa to be Colonel to command the 101st Regimental District (the Royal Munster Fusiliers). Brevet Lieut.-Colonel G. H. Jessop, A.S.C., to be Colonel. Lieut.-General (local General) Horatio Herbert, Lord Kitchener of Khartoum, G.C.B., G.C.M.G., Commanding-in-Chief the Forces in South Africa, to be General in the Army, Supernumerary to the Establishment, in recognition of his distinguished services in South Africa. Lieut.-Colonel L. S. Mellor from the King's (Liverpool Regiment) to be Colonel to command the 27th Regimental District (the Royal Inniskilling Fusiliers). Colonel (temporary Brigadier-General) Sir H. A. MacDonald, K.C.B., D.S.O., A.D.C., to be a Brigadier-General on the Staff to command the Troops in Ceylon, and to have the temporary rank of Major-General whilst so employed. Lieut.-Colonel and Brevet Colonel M. O. Little, 9th Lancers, to be a Brigadier-General on the Staff and to have the local rank of Brigadier-General whilst so employed. Lieut.-Colonel H. P. Knight, R.E., to be Colonel. Lieut.-Colonel E. G. Grogan, the Black Watch (Royal Highlanders), to be Colonel. Lieut.-Colonel W. H. Goldney, R.E., to be Colonel. Lieut.-Colonel J. F. D. Fordyce, L.S.C., to be Colonel. Lieut.-Colonel E. C. Wace, D.S.O., R.G.A., to be Colonel. Lieut.-Colonel and Brevet Colonel A. J. Price, C.M.G., commanding the Troops in St. Helena is granted the substantive rank of Colonel in the Army. Lieut.-Colonel R. A. G. Harrison, C.M.G., R.A., is granted the local rank of Colonel in South Africa whilst commanding the Pietersburg District and Lines of Communication North of Nylstroom (exclusive). Lieut.-Colonel H. D. Olivier, R.E., to be Colonel. Lieut.-Colonel E. Blunt, R.E., to be Colonel. Lieut.-Colonel H. M. Owen, 1st Dragoon Guards, to be Colonel. Brevet Colonel G. Grant-Dalton from Lieut.-Colonel h.p. to be Colonel to command the 14th Regimental District (the Prince of Wales's Own West Yorkshire Regiment). Lieut.-Colonel and Brevet Colonel R. M. Ruck, R.E., to be a Deputy Inspector-General of Fortifications at Head Quarters. General Sir H. W. Norman, G.C.B., G.C.M.G., C.I.E., L.S.C., Governor Royal Hospital, Chelsea, to be Field-Marshal. General H.R.H. the Duke of Connaught and Strathearn, K.G., K.T., K.P., G.C.B., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O. commanding the Forces and IIIrd Army Corps in Ireland, to be Field-Marshal. H.R.H. the Prince of Wales, K.G., K.T., K.P., G.C.M.G., G.C.V.O., to be General supernumerary to Establishment. Major-General Sir Charles Tucker, K.C.B., to be Lieut.-General for Distinguished Service in the Field. Colonel R. S. P. Fetherstonhaugh, C.B., to be Major-General for Distinguished Service in the Field. Colonel Sir H. H. Settle, K.C.B., D.S.O., R.E., to be Major-General for Distinguished Service in the Field. Lieut.-Colonel H. F. W. Hamilton, D.S.O., to be A.D.C. to the King, with the brevet rank of Colonel in the Army. Lieut.-Colonel J. S. S. Barker, R.A., to be Colonel. Brevet Lieut.-Colonel Sir H. S. Rawlinson, Bart., C.B., Major,

Coldstream Guards, to be Colonel. Lieut.-Colonel S. B. Beatson, C.B., I.S.C., to be Colonel. Lieut.-Colonel E. H. Bethell, D.S.O., R.E., to be Colonel. Lieut.-Colonel M. F. Rimington, C.B., 6th Dragoons, to be Colonel. Lieut.-Colonel J. L. Keir, R.A., to be Colonel. Lieut.-Colonel A. Wools-Sampson, C.B., Imperial Light Horse, to be Honorary Colonel in the Army. Rev. A. W. B. Watson, M.A., Chaplain to the Forces (2nd Class), to be Chaplain to the Forces (1st Class).

SOUTH AFRICA.—Boer Horses.—Dr. A. Theiler, a veterinary surgeon, who resided in Pretoria before the war, describes in the *Schweizerische Monatsschrift für Offizier* the characteristics of the Boer horses. They are the products of the conditions of life on the veldt during the last two hundred years, which have bred a race of animals whose adaptation to the existing situation has given the Boer an extraordinary advantage over the ill-trained mounted men of the British forces. The demands made upon the Boer horses during the present war have been exactly the same, neither more nor less, as those which have been imposed upon them ever since the so-called Great Trek. The Boer has always exacted from his horse the maximum of work with the minimum of food. In a land where distances are great and population sparse, horses must be had able to withstand all inclemencies of weather and to travel, day by day, 40 to 50 miles, feeding on grass only, and that often of but poor quality. From the day of his birth until the day he is first ridden, the foal seldom comes into a stable or under any kind of shelter; and gets nothing whatsoever to eat beyond what he can pick up on the veldt. Similarly when, later on, he comes to be used for riding or draught purposes he has still to pick up his living as he may, and most rarely is given any forage that has been cultivated. Only when called upon to perform some most extraordinary work is he given any corn, and even then it is not threshed out, but the forage must be eaten stalk, ears, and grains together. And yet the animals thrive wonderfully and keep themselves in excellent condition. As foals they gallop over the veldt, jumping rocks and boulders, avoiding the innumerable ant-hills, recognising marshes and boggy ground from afar, learning when they do happen to get into difficulties to extricate themselves cleverly, and fearing neither man nor beast. All these are qualities which stand the rider in good stead, especially in the night, when, in crossing such ground as the South African veldt, he is often obliged to rely altogether upon the intelligence of his mount.

The day's work done, no matter how long and fatiguing it may have been, the Boer horse, turned loose, will never stand idle, but will at once roam about and graze. Be the grass what it may, dry in winter, or green in summer, the animal will always know how to find enough nourishment in it to keep himself in condition for his ordinary work.

One result of the manner in which the Boer horses are reared is the extraordinary cleanness of their limbs. This is largely owing to the fact that the animals are only shod late in life, and very often not at all. Their hoof is an ideal hoof. In every respect it fulfils every requirement. It is small, hard, and so elastic that it can be long used on rocky ground before the horse shows any sign of going short. The Boer has absolutely no knowledge whatsoever of farriery, but he has two rules which keep him fairly well on the right path. The first is that he never shoes his horse until it begins to go short. Should it never do so, the animal is never shod. The second is, that once a shoe is put on, it remains on until it falls off. As the shoers are mostly amateurs, the shoe does not as a rule remain on long, and when it falls off it is not replaced until the horse again begins to go short. Thus Nature is allowed to work fairly well

unhindered, and the hoof and foot remain in a healthy condition. As a matter of fact, the Boer horses seldom go lame, and aged horses often have feet like young ones. But once brought into the stable, fed with corn, and shod, the clean-limbed horses soon change for the worse, and develop all manner of blemishes and diseases.

For the rest, the Boer horse is small, generally of a brown colour, and of no great speed. The body is compact, the head and neck usually short, and the back and hind-quarters level. In this they are reminiscent of the Arabian type, and this is probably owing to the fact that one of the earlier English governors introduced Arabian blood into Cape Colony. For the most part also the Boer horses are broad in the chest, with a large belly, though there are, nevertheless, a large number with narrow chests, weak forelegs, and small heads and necks. This is a result of indiscriminate breeding, as the Boer holds that a mare is always good enough to breed from, though she may be no good either for riding or draught purposes.—*Army and Navy Journal*.

FRANCE.—*The French Army*.—The following account of the French Army is taken from the *Canadian Military Gazette*:—The French Army of to-day is the most democratic in the world. Practically all exemptions have been abolished, and, with the exception of the criminal classes, who are found work elsewhere, every able-bodied Frenchman, whatsoever his rank or degree, undergoes a thorough military training. By the new law, which came into operation on 1st November, 1889, the whole period of liability to military service was increased from 20 to 25 years. The age at which liability begins is, as before, 21 years, but the regular periods of service stand as follows:—3 years in the Standing Army, 10 in the Reserve of the Standing Army, 6 in the Territorial Army, and 6 in the Reserve of the Territorial Army. The first-named is, of course, the period of real soldiering "with the colours," but exceptions are made as follows: The eldest son of a widow, or of a blind father, or of a man who has reached the age of 70, serves only 1 year; the eldest son in a family of seven, or he who proves himself to be the support of his family, enjoys the same privilege; while a year's service is only demanded from those who are studying to become painters, priests, teachers, lawyers, and doctors. Then, again, there are the volunteers—for men volunteer even in a country where military service is obligatory—who enlist for a term of 5 years. It is from this latter class of professional soldiers—"mercenaries" they are styled when describing an Army like our own—that France obtains her military backbone, the non-commissioned officers, who, when they have completed their term, are tempted to re-engage by the offer of liberal bounties.

In this article we propose giving some account of the life and training of the French infantry soldier of the Line, excluding from it that of the Chasseurs à pied, Zouaves, Algerian riflemen, etc., who also belong to the infantry force. There are 163 regiments of the Line, distinguished by their numbers, which run consecutively from 1 to 163. The first 144 and number 163, or so-called sub-divisional regiments, are distributed among the 18 continental army corps. The remaining 18, or regional regiments, are disposed along the frontiers, and are specially intended to support the frontier corps and cavalry divisions on the outbreak of war. Each regiment consists of 3 or 4 battalions, each battalion of 4 companies, and each company is divided into 4 sections, the first 2 forming the first peloton or platoon, and the second 2 the second peloton. The company is the tactical unit, and its normal strength is 4 officers and 250 bayonets. The company is commanded by a captain, a mounted officer, who has under him a lieutenant and a second lieutenant, while there are also one or more reserve officers attached for training. "Pioupiou" knows his company commander by the nickname of

the "old man." The battalion is commanded by a mounted major, and the regiment by a colonel, of course. The non-commissioned officers of the company are as follows: The adjutant, who is a typical old soldier, and a lineal descendant of the grizzled, fire-eating, patriotic, sous-officier of the Eckmann-Chatrion novel; the sergeant-major, known as the "double," on account of the two gold stripes he wears on his sleeve; the fourrier, or quartermaster, who is nicknamed the "bread thief"; 16 drill-sergeants, being 4 per section; 2 musketry sergeants; and a score of corporals. The aggregate strength of a sub-divisional regiment is 62 officers and 1,591 rank and file; that of a regional regiment, 51 officers and 1,560 rank and file.

In France the territorial system is not so thoroughly systematised as it is with us, but, as far as possible, a man is allowed to serve in his own neighbourhood, which procedure, besides being popular with the men, is economical for the Government—it is calculated to save the latter one meal a day. On joining, the conscript is bathed, medically inspected, and revaccinated, after which he draws his clothing. The uniform consists of a tunic, jacket, great-coat, trousers, kepi, and shako. The tunic is a dark blue, double-breasted coat, with a yellow collar, with dark blue edging. At each corner of the collar is a patch of dark blue cloth, on which is sewn the number of the regiment, stamped out in yellow cloth. The jacket is dark blue. The great-coat, or capote, is of bluish grey cloth. The latter is a pre-eminently serviceable article of clothing, being warm in winter, cool in summer, and an excellent covering for the night. The trousers are of madder colour, without stripe, and cut very full. The kepi is of madder, with dark blue band, and the number of the regiment in front. The shako is of dark blue, with band of yellow braid round the upper edge, and two narrower bands of the same colour in an oblique line on either side. The pompon consists of two spheres one above the other. The upper sphere is scarlet, the lower, dark blue for the 1st Battalion, madder for the 2nd, and yellow for the 3rd. It has in front the number of the company in copper figures. In front of the shako, under the pompon, is a circular cockade in metal, painted the national colours, and below it is a metal plate in the shape of a grenade. Large scarlet epaulettes are worn with tunic and capote. The boots are of the ankle pattern—brodequin Napolitan—and high white spats are worn with them. Two brown drill suits, special boots for Sunday, gloves, and fatigue caps complete the linesman's kit.

During the first year of his military career the young soldier is known as a "bleu," in contradistinction to the term "ancien," applied to him after that period. Every line regiment has one flag, and a picturesque function is the presentation of the bleus to the colours. This old custom, which, however, is not followed everywhere, takes place at a commanding officer's parade. The drums and bugles sound the rally "to the flag," whereupon the colour party is surrounded by old officers and old soldiers who boast a decoration or medal. The young officers then march up and are formally presented to the flag by the colonel, who also touches each lightly with the sword and kisses him. Next, the recruits, without arms, come and stand in a semi-circle before the flag, whilst the colonel delivers a patriotic speech. The "presentation" is followed by a half-holiday, during which the flag is exhibited in the Salle d'Honneur, with a guard. Round it are grouped all the souvenirs of the regiment, pictures, relics, photographs, etc., and the glorious associations of the regiment are expounded by the company commanders.

In barracks a section occupies a *chambrée*, which contains the quota of beds, a stove in the centre, and a table with benches. A corporal commands each *chambrée*. The men feed, however, in refectories or dining halls, not in the *chambrées*. The French "Tommy Atkins" gets three meals per day, the daily ration allowance per man being $1\frac{1}{2}$ lbs. of bread and $10\frac{1}{2}$ ozs. of meat. First, he has black coffee and bread at

veille; followed at about 10 o'clock by soup, which consists of pot-au-feu, composed of boiled beef, broth, and vegetables. The chief meal of the day is dinner, at five o'clock, for which the company chefs prepare a savory stew of meat and vegetables. Although military cooking has been brought to an appetising degree of perfection in France—which circumstance is not extraordinary in the case of a nation that ranks cooking as one of the fine arts—the men supplement their fare with delicacies from the canteen. Obligatory service means that in every section there are a few men comparatively well off, and it is etiquette for the latter to share everything with their poorer comrades. If the canteen had to rely on the soldier's pay alone, trade would indeed be slack. "Pioupiou" gets only one halfpenny a day, paid every fifth day, and accompanied by a little homily against extravagance.

The life of the French linesman spells plenty of work. Rising at five o'clock, he has four hours of drill, gymnastics, musketry instruction, or route marching before soup time; and in the afternoon these exercises are repeated. The recruit fires his course with the old Gras rifle, after which he is promoted to the service weapon, the Lebel. The French Army has ever been famous for its splendid marching, hence route marching is considered the most important of exercises, the distances covered being gradually increased till the men think nothing of turning out for a 30-mile spin. These marches are always carried out in full marching order. The infantry equipment consists of black leather waist-belt, two cartridge pouches, black canvas knapsack, containing brushes, underclothing, pair of shoes and gaiters, two days' rations, and the cartridges not carried in the pouches; rolled great-coat on the top of the knapsack, with tente-abri and cooking-vessel—one for every four men—and water-bottle and haversack slung over the shoulder.

There is always a kit inspection or review on Saturday. For the general's inspection the floors of the barrack rooms, hospitals, etc., are waxed with bottles till they are as slippery as ice. The regimental hospital is beautifully clean and superbly equipped, and when the French equivalent to a "brass-hat" is expected to pay it a visit the orderlies scent the patients' pocket-handkerchiefs.

The discipline in the French Army is very strict, but the stories about the alleged brutality of the non-commissioned officers to their men have no foundation in fact. The non-commissioned officer, however, has more power than his British contemporary; for example, he is empowered to award "C.B." up to three days, but, probably, he will be deprived of this power ere long.

The washing arrangements in the French barracks are very complete. Once a week there is a bathing parade. Again, the French soldier washes his own linen, etc., usually in a river, if one is near, the operation being treated as a parade.

On passing into the Reserve of the Active Army, the men are called out for training by yearly contingents or classes, two classes being called out annually for 28 days. The men of the Territorial Army are summoned for 13 days' training during their service with that Army.

We are afraid that the old, cherished theory of each French soldier having a field-marshal's bâton in his knapsack no longer holds good. Owing to the ever-increasing stiffness of the examinations, which have to be passed at every step, those of the rank and file who wish to take up the Army as a profession now experience great difficulty in rising above the rank of lieutenant.

ITALY.—*The Italian Army in 1900-1901.*—The Inspector-General of Recruiting has just published his annual report on the results of the calling out of the 1880 Class,

and gives a detailed account of the Italian Army for 1900-01. This document, which is most complete, deserves to be carefully studied in detail, but as it is very long the following extracts from the most interesting items are given:—

As is well known, the number of the class, in Italy, is indicated by the year in which young men taking part in the recruiting operations were born. According to the Report, the number of these registered, at the time of drawing lots, amounted to 387,444 men, although in previous years this number considerably exceeded 400,000. In the previous year, for the 1879 class, the number of those registered amounted to 412,133 men; there is, therefore, in the last class a deficit of more than 24,000 men, which is due to the great decrease in the number of births during 1880. Of the total number of those registered only 92,376 were declared fit for service and attached to the 1st Category; the proportion, therefore, of those enrolled to those registered is only 23·84 per cent., which is exceedingly small. The number of those put back amounted to 92,763 and that of those rejected to 76,684 men. This number is excessively high. The men attached to the 3rd Category, that is to say, those who are dispensed from active service in peace-time, amount to 86,353, viz., a proportion of 22·29 per cent. This proportion is also high, and it is probable, though by no means certain, that it will be considerably reduced by new legislative measures diminishing the number of those dispensed from service, which is such a marked source of weakness in the recruiting of the Italian Army. Thus every year one sees about 25,000 exemptions for only sons of a father still living. The number of those failing to appear was 27,000, or 7 per cent. Finally, the number of young men struck off the recruiting lists, for various causes, amounted to 12,623, or 4·14 per cent.

The education of the young soldiers was decidedly weak, although it showed a slight improvement. In the 1880 Class 33 per cent. of the men could neither read nor write. Want of chest development and weakness of constitution were the principal causes of the exemptions, and these alone amounted to 30 per cent. of those declared unfit.

From 1st July, 1900, to 30th June, 1901, the number of the officers increased by 1,882 and decreased by 1837; resulting consequently in a net increase of 45 officers. The effective, then, of the officers went from 13,572 to 13,617. The officers of the permanent Army were distributed as follows:—

General staff, 142; staff corps, 155; corps of pensioners and veterans, 12; royal carabinieri, 585; infantry, 6,911; cavalry, 883; artillery, 1,689; engineers, 578; district permanent *personnel*, 370; *personnel* of forts, 59; medical corps, 614; commissariat corps, 275; pay department, 1,162; veterinary department, 182—total, 13,617.

According to their various ranks these officers are thus distributed:—

Lieut.-generals, 53; major-generals, 84; colonels, 314; lieut.-colonels, 531; majors, 923; captains, 4,339; lieutenants, 6,076; sub-lieutenants, 1,201; bandmasters, 96—total, 13,617. On the same date, 30th June, 1901, the number of unemployed officers or those not on the active list was 248; officers serving with the auxiliary forces amounted to 772; supernumerary officers, 11,837; officers of the Territorial Militia, 4,014. Finally, there were 6,230 reserve officers. Consequently, if these numbers are added to those of the Regular Army on 30th June, 1901, it will be seen that on that date Italy had a total of 36,718 officers of all ranks and of all arms.

On the 30th June, 1901, the total strength of the rank and file of the Italian Army was 3,330,202 men, thus distributed:—

Permanent Army: under arms, 248,111; on unlimited furlough, 486,290; total, 734,401.

Mobile Militia, 320,170.

Territorial Army, 2,275,631.

The rank and file of the permanent Army were thus distributed among the various branches of the Service:—

	With the Colours.	On Unlimited Furlough.
Infantry of the Line and Grenadiers ..	120,975	268,827
Military Districts, etc.	792	20,721
Alpine Troops	12,925	21,598
Bersaglieri	16,523	29,127
Cavalry	20,980	30,568
Artillery	32,563	76,569
Engineers	9,196	20,950
Royal Carabiniers	24,912	4,494
Military Schools	1,363	—
Hospital Companies	3,015	9,237
Commissariat Companies	2,412	4,199
Pensioners and Veterans	148	—
Remount Depôts	375	—
Disciplinary Companies	943	—
Military Penitentiaries	1,049	—
Totals	248,111	486,290
Grand total	734,401	

The number of voluntary engagements was 4,334; further, 1,325 young men enlisted voluntarily for one year. The cadet sergeants' courses were followed by 1,237 youths, but only 880 completed them. Of that number only 800 passed and were promoted to the rank of sergeant.

As in previous years there were two sets of courses for supernumerary cadet officers, one for 6 and the other for 9 months. The six months' courses were followed by 965 young men, of whom 953 passed and were promoted supernumerary sub-lieutenants. The 9 months' courses were followed by 381 young men; of that number 328 successfully passed the prescribed examinations and were promoted supernumerary sub-lieutenants.

The number of civil billets given to non-commissioned officers of over 12 years' service amounted to 330. On the 1st July, 1901, there still remained 2,005 non-commissioned officers entitled to such employment. Of that number 1,545 were with the colours and 460 on unlimited furlough.

A detail deserving of attention is the large number of soldiers, still under obligation of military service, who have obtained leave to emigrate. This number was 51,720. This, as has already been pointed out, must have most deplorable results in the event of an unexpected mobilisation. These emigrants are, as a rule, young and strong, and their absence at such a moment would necessarily be most prejudicial to their country's interests.

In conclusion, a few remarks may be made on the sanitary condition of the Italian Army. From the 1st July, 1900, to the 30th June, 1901, the number of deaths with the colours amounted to 889. Of that number 746 died of disease, 49 through accidents, 10 were assassinated, whilst 84 committed suicide.—*La France Militaire*.

NETHERLANDS.—*Re-organisation of the Infantry and Fortress Artillery Reserve Cadre.*—A Royal decree of 12th May of this year introduces the following principal changes :—

This cadre will consist in future of two categories of volunteers : The first will be composed of young men of from 17 to 24 years of age, cadet-ensigns, who are in possession of a certain amount of general and military information : it corresponds to the former reserve cadre. The 2nd Category will consist of former non-commissioned officers who have left the Regular Army less than three years ago, and apply for enrolment in it.

As regards the volunteers of the 1st Category, the period of engagement is increased from 7 to 12 years, of which 8, at least, are passed in the Reserve of the Regular Army, and the remainder in the Landwehr. These volunteers are still subject to 8 months' active service, distributed among the first 3, and exceptionally among the first 4 years of their engagement. They no longer, however, will have the privilege of selecting the period of their first instruction ; this will take place between 1st July and 1st October, which corresponds with the regular school holiday period. These young men will, in addition, until promoted sergeant, take part in local drills for 3 hours a week, during, at most, 6 months in the year. After their appointment to the rank of sergeant and of ensign they will be called up for active service, always for a period of 6 weeks, in order to familiarise them with their new duties.

The volunteers of the 2nd Category enlist for 6 years when entering the reserve cadre. They may be called out for 1 month during the first, third, and fifth year of their service. The non-commissioned officers, especially, may be used as instructors. The volunteers of the reserve cadre receive the same allowances as soldiers of the Regular Army of similar rank : they are also entitled to an annual bounty, the amount of which is as follows :—

	£	s.
Corporals of the 2nd Category	2	10
Sergeants „ „ „ „ „ „ „ „ „ „	4	0
Sergeants fit for the appointment of ensign	5	0
Ensigns	8	8

The latter receive, in addition, a first instalment of £16 16s. for the supply of equipment.

Hitherto, a field officer of the Regular Army has been in charge of the supervision of the reserve cadre and of the courses of preparatory local military instruction. He was called "Field Officer of the Reserve Cadre," and was under the immediate orders of the War Minister. This post has been done away with, and the duties have been confided to a field officer specially attached for that object to the Inspector-General of Infantry, who is charged with the chief supervision of these duties.

Recruiting Statistics for 1901.—The number of young men who reached the age for military service amounted to 47,761, who were classified as follows :—

Unfit for service	{ as too short	647
	{ on account of infirmities	4,662
	{ as only sons	5,098
Exempt	{ as in the personal service of heads of departments, and as having brothers already serving	10,965
Debarred from service	... ..	71
Deceased between periods of drawing lots and of enrolment	... ..	33
Enrolled	{ in the Territorial Army	10,477
	{ in the Navy	510
Exempted on account of the numbers they drew	... ..	15,298
Total	... ..	47,761

The number of those enrolled in the Territorial Army includes 185 Militiamen, dispensed from active service in peace-time : 103 on account of being priests, 76 as supporters of families, and 6 as students or professional men.—*Bulletin de la Presse et de la Bibliographie Militaires.*

RUSSIA.—*The Koursk Grand Manœuvres.*—In the general programme for the Grand Manœuvres of the Russian Army (see JOURNAL for last month) the composition of the forces taking part in these in the Koursk district was briefly indicated. As is well known, these manœuvres should have taken place in 1900, but were countermanded on account of the events in China. The *Ruskii Invalid* now gives supplementary details of these grand manœuvres, which are of very special interest, owing to the large forces taking part in them, and to the exalted rank of the two commanders. The general idea of the manœuvres is as follows :—

An invading army (fictitious) has crossed the Dnieper between Orcha and Rielchitsa and is advancing, on an extended front, in the direction of Moscow. It is covered on its right by the southern army, which is echeloned in advance, and which has crossed the Dnieper at Kieff. This army is advancing on Koursk by the shortest route with the object of seizing that important railway junction, and afterwards, when reinforced, to march on Moscow.

The Moscow Army is ordered to cover Koursk, and has been detailed to march on that town by Orel, to advance to the attack of the Southern Army and to roll it back to the south.

At the commencement of the manœuvres the first day of which will be the 4th September, the southern army has pushed its main body up to the line of the Reout, a left affluent of the Seim, and to within two marches of Koursk. On the same date the Moscow Army has occupied Koursk, and has disposed its main body to the west of that town and to the north of the Seim.

In order to render the peace manœuvres more instructive, the Emperor has decided to leave to both forces the greatest possible liberty of action, and not to set them a special idea each day. Consequently the development of the operations can be only a matter for conjecture, and the last day of them cannot be definitely fixed ; they are, however, supposed to last from 7 to 10 days. This liberty of action will no doubt present serious difficulties to the commissariat, who will have to provide for supplies for about 90,000 men. The Moscow Army is placed under the command of the Grand Duke Serge, who commands the troops of the Moscow District, and consists of 74½ battalions, 36½ squadrons, and 192 guns, with an effective of 40,000 men. These forces are divided into three army corps, viz., the XIIIth, commanded by Cavalry General Rebinder, with the 1st and 36th Infantry Divisions and their artillery, the 51st Dragoon Regiment and the 13th Engineer Battalion, altogether 29 battalions, 6 squadrons, and 56 guns ; the XVIIth, commanded by the Cavalry General Bilderling, consisting of the 3rd and 35th Infantry Divisions with their artillery, the 52nd Nijine Dragoon Regiment, and the 17th Engineer Battalions, or altogether 29 battalions, 6 squadrons, and 56 guns ; a mixed army corps, under the command of Lieut.-General Orens, made up by the 5th Brigade of Rifles and its artillery, the 55th and 56th Reserve Infantry Brigades, the 2nd and 3rd Reserve Artillery Brigades, the 1st Don Cossack Regiment, and a company of the Grenadier Engineer Battalion, altogether 16½ battalions, 6 sotnias, and 68 guns.

The field army cavalry is formed by the 1st Cavalry Division, exclusive of the Cossack Regiment, and consists, consequently, of 18 squadrons and 12 guns. In

addition, a half squadron from the Junker Cavalry School at Tver undertakes the orderly duties for the Moscow Army, whilst the supply convoys are furnished by the 2nd Transport Battalion.

The Southern Army will be commanded by the War Minister, General Kouropatkin, and consists of 86½ battalions, 46 squadrons, and 216 guns, with a total effective of about 48,000 men. Its forces are also divided into three army corps, viz.:-

The VIIIth, under Lieut.-General Myloff, consists of the 15th and 34th Infantry Divisions with their artillery, the 1st Volga Cossack Regiment and the 14th Engineer Battalion, or altogether 33 battalions, 6 sotnias, and 64 guns; the Xth, commanded by Lieut.-General Sloutchevsky, consists of the 9th and 31st Infantry Divisions with their artillery, the 1st Ouroup Cossack Regiment, the 3rd Orenbourg Cossack Battery, and the 7th Engineer Battalion, altogether 33 battalions, 6 sotnias, and 62 guns; a mixed army corps, under Lieut.-General Filippoff, is formed by the 3rd and 4th Brigades of Rifles with their artillery, the 51st Reserve Infantry and the 4th Reserve Artillery Brigades, the 1st Brigade of the 2nd Mixed Cossack Division with the 1st Orenbourg Cossack Battery and 2 companies of the 5th Engineer Battalion, making altogether 20½ battalions, 12 sotnias, and 78 guns.

The field army cavalry consists of the entire 10th Cavalry Division, or 24 squadrons and 12 guns. The 4th Transport Battalion is responsible for the supply convoys of the Southern Army.

It should, however, be noted that all the above troops do not form a portion of the Southern Army at the commencement of the operations; the 15th and 34th Infantry Divisions with their artillery, who come from the Odessa District, do not arrive on the manoeuvre ground until the evening of the second day. Thanks to this circumstance, the Moscow Army will have a marked superiority over the Southern Army for the first two days by about 20½ battalions, 40 guns, and 11 squadrons. This will allow the former to take the offensive during the first period of the operations. When the Southern Army has received its reinforcements the numerical superiority will be transferred to it, and it will have 11½ battalions, 11½ squadrons, and 24 guns more than its adversary. The umpire-in-chief will be Field-Marshal the Grand Duke Michael Nicolaievitch, Director-General of Ordnance.

The terrain for the manoeuvres, which was selected in 1900 and which lay to the north of Kursk, between that town and Orel, has been changed this year on account of the insufficiency of water in that district. This year's operations will take place to the south-west of Kursk towards Kosénévo, a railway station between Kursk and Kieff. The general characteristics of this district show isolated groups of small hills separated from each other by a series of valleys and ravines. The rivers Seim and Reout divides it into three theatres of operations, each differing from the other in the nature of its ground. To the north of the Seim the variation is most marked; long rolling downs extend from the north to the south, ending in steep slopes down to the river, the right bank of which commands the left. Between the heights lie ravines with rugged banks, and with an average depth of 40 metres. Between the Seim and the left affluent, the Reout, the variation is less marked; the valleys, which lie between the small hills, are only about 15 to 20 metres in depth, the slopes are gentle, and there is but little water. The right bank of the Reout is much steeper than the left and is intersected by deep ravines. Beyond the Reout the country preserves, at first, the same characteristics, but changes abruptly about 20 kilometres further on; the network of ravines becomes closer and the ravines themselves have such steep banks that in places they are extremely difficult for infantry to negotiate. The two principal rivers which intersect

the district from east to west are difficult to cross, owing to the fact that the right bank commands the left.

Composition of the Armies.

1. The staffs will be formed on a war footing ; at the same time only the number of officers and clerks strictly necessary will be employed. The headquarters of each army, in addition to the *personnel* at the immediate disposal of each army commander, will consist of 7 general and 17 other officers and 7 clerks. The chiefs of the staffs of the two forces will be Lieut.-General Soboleff, Chief of the Staff of the Moscow District, for the Moscow Army ; and Lieut.-General Soukhomlinoff, Chief of the Staff of the Kieff District, for the Southern Army.

2. In order that the infantry may be able to put 32 files per company into line, the duties at the base, requiring 700 per army, will be performed by troops not taking part in the manœuvres ; the Grenadier Corps will undertake these duties for the Moscow Army and the XX1st Army Corps for the Southern Army.

3. The cavalry must have at least 12 files per platoon ; in order to ensure this, and as young horses may not be taken to manœuvres, the horses and mounted orderlies necessary for the umpires, as well as horses required for Engineer officers who do not have them in peace-time, will be requisitioned from cavalry corps not taking part in the manœuvres.

4. Amongst the infantry selected for the manœuvres there is only one division and the three brigades of Rifles who already have mounted orderlies. The other corps will also get them at the rate of 8 per regiment from the Grenadier Corps and from the XIth and XIIth Army Corps.

5. Company commanders will have the right to take their own saddle horses to the manœuvres, and are authorised to have them transported by rail, at the same time as themselves, at Government expense.

Transport.

1. The regulation transport will be horsed by animals kept for that purpose. But as the number is, as a rule, less than that necessary, the corps will purchase horses to complete establishment.

2. All troops taking part in the manœuvres will be provided with field kitchens. Corps from the Moscow District, which have not yet got them, will receive those which are being experimented with in the Grenadier Corps, or others which have been specially ordered for the manœuvres. The Southern Army, however, which already has two of these kitchens per battalion, one per squadron, and one for every two batteries, will be better off in this respect than the Moscow Army, which will only have one kitchen for each battalion, squadron, or group of batteries. These field kitchens have four wheels and consist of a fore part, a kind of provision chest, and a back part, a copper boiler or camp kettle, on a stove. The latter is lighted before marching off, so that the soup or ration is cooked during the march and is ready for the troops on arrival in camp or halting place. This method is much appreciated by the Russian soldier ; it has only one drawback, viz., it greatly increases the number of wagons, already so numerous with the Russian army corps.

3. Although the present theatre of operations is better provided with water than that selected in 1900, there is still reason to fear that it may prove insufficient for such a vast assemblage of troops. Norton watertanks have therefore been ordered to replace those purchased in 1900, which were sent out to China. Corps may, in addition, bring with them casks of drinking water on wagons hired at Government expense.

Ammunition Service.

Ammunition allotted for the manoeuvres will be at the rate of 100 blank rounds per man in the infantry, 50 in the cavalry, 30 in the Engineers, and 100 blank rounds per gun for the artillery. The cartridges will for the most part be carried by the men, but 10 rounds per rifle for the infantry will be carried in the two-wheeled ammunition carts. The supply of artillery ammunition will be organised as in war. Each army corps will therefore form small mobile parks, and a local park will operate behind each army. These parks will carry that ammunition for which there is no room in the gun limbers.—*La France Militaire.*

CORRESPONDENCE.

Owing to pressure of space it has been necessary to hold over several letters which have been forwarded to us for publication.

NAVAL AND MILITARY CALENDAR.

JUNE, 1902.

- 1st (S.) H.M. the King published a message to his people expressing satisfaction at the cessation of hostilities in South Africa.
- 2nd (M.) The Peace terms were read in Parliament.
- 3rd (T.) The West Indian Coronation Contingent left West Indies for England on the "Atrato."
- 4th (W.) H.M.S. "Icarus" paid off at Chatham from Pacific.
 " " H.M.S. "Arrogant" paid off at Devonport.
 " " H.M.S. "Doris" commissioned at Devonport for Channel Squadron.
 " " H.M. the King raised Lord Kitchener to the dignity of Viscount.
 " " 750 men and horses, 4th Canadian Contingent, arrived in South Africa from Canada on the "Cestrian."
- 5th (Th.) H.M.S. "Scylla" commissioned at Chatham for relief service.
 " " H.M.S. "Fantôme" commissioned at Sheerness for North America and West Indies.
 " " Parliament granted a sum of £50,000 to Lord Kitchener, and passed a vote of thanks to him and to the troops in South Africa.
- 6th (F.) H.M.S. "Ariadne" commissioned.
 " " H.M.S. "Royal Oak" paid off at Portsmouth.
 " " H.M.S. "Orlando" arrived at Portsmouth from China.
 " " 750 men and horses, 4th Canadian Contingent, arrived in South Africa from Canada on the "Winifredian."
- 7th (Sat.) H.M.S. "London" commissioned at Portsmouth.
 " " The Committee's Report on the Education of Army Officers was issued.
 " " The Representative Coronation Contingent from the Army in South Africa left Cape Town for England on the "Bavarian."

- 9th (M.) 2nd Tasmanian M.I. } Arrived at Albany from
7th New Zealand Contingent } South Africa on the
Details } "Manilla."
- 10th (T.) 4th Bn. North Staffordshire Regiment (Militia) arrived at Southampton from South Africa on the "Manhattan."
- 11th (W.) H.M.S. "Warspite" arrived at Chatham from Pacific; pays off 1st July.
" " 4th Bn. Bedfordshire Regiment (Militia) arrived at Southampton from South Africa on the "Guelph."
- 12th (Th.) H.M.S. "Astraea" paid off at Chatham from China.
" " Announced that Colonel Morland's Expedition had reached Lake Chad, and established effective British occupation on its shores.
" " The Indian Contingent for the Coronation arrived at Southampton from Bombay on the "Hardinge."
- 13th (F.) 500 men and horses, 4th Canadian Contingent, arrived in South Africa from Canada on the "Corinthian."
- 14th (Sat.) H.R.H. the Prince of Wales inspected the Boys' Brigades on the Horse Guards' Parade.
" " 35th and 36th Bns. Imperial Yeomanry arrived in South Africa from England on the "Sicilian."
- 15th (S.) 37th and 38th Bns. Imperial Yeomanry arrived in South Africa from England on the "Orotava."
- 16th (M.) H.M. the Queen, in the absence of H.M. the King, reviewed 31,000 troops at Aldershot and presented new colours to the 2nd Bn. Highland Light Infantry.
" " The Canadian Coronation Contingent arrived at Liverpool from Halifax on the "Parisian."
- 17th (T.) H.M.S. "Hawke" arrived at Plymouth with relieved crews from the Cape.
" " Lord Kitchener announced that the surrenders in the Transvaal and Orange River Colony were complete and amounted to 16,620 men and 16,123 rifles.
" " The West Indian Coronation Contingent arrived at Plymouth from the West Indies on the "Atrato."
- 18th (W.) Lord Kitchener telegraphed to Generals Botha, Delarey, and De Wet, thanking them for their efforts in facilitating surrenders.
" " 3rd Bn. King's Own Scottish Borderers (Militia) arrived at Southampton from South Africa on the "Roslin Castle."
- 19th (Th.) Launch of second-class cruiser "Encounter" at Devonport.
" " King Albert of Saxony died.
" " Victorian Companies, Commonwealth Horse, arrived in South Africa from Melbourne on the "Manchester Merchant."
- 20th (F.) Queensland Companies, Commonwealth Horse, arrived in South Africa from Brisbane on the "Custodian."
- 21st (Sat.) Launch of third-class cruiser "Denver" at Philadelphia for U.S. Navy.
" " H.M. the King received Lord Kitchener's despatches formally announcing the Boer surrender.
" " 39th Bn. Imperial Yeomanry arrived in South Africa from England on the "Britannic."

- 23rd (M.) Chinese cruiser "Kai-Chi" blew up at Nanking; 150 lives lost.
 " " Lord Kitchener and Sir John French left South Africa for England on the "Orotava."
 24th (T.) German Torpedo-boat S 42 sunk by collision at mouth of Elbe.
 " " The Coronation Ceremony was postponed owing to the illness of H.M. the King.
 " " The Representative Coronation Contingent from the Army in South Africa arrived at Southampton from South Africa on the "Bavarian."
 " " 3rd Bn. the Cameronians (Scottish Rifles (Militia)) left Cape Town for England on the "Lismore Castle."
 25th (W.) H.R.H. the Duke of Cambridge presented their first colours to the 4th Bn. Middlesex Regiment at Wellington Barracks, London.
 26th (Th.) The list of Coronation Honours was published.
 " " 5th (New South Wales) Bn. Commonwealth Horse arrived in South Africa from Sydney on the "Columbian."
 27th (F.) 1,500 Canadian troops left South Africa for Canada on the "Winifredian."
 28th (Sat.) Reservists of Grenadier Guards left Cape Town for England on the "City of Vienna."
 " " The Treaty renewing the Triple Alliance in its original form was signed at Berlin.
 30th (M.) 5th Bn. Lancashire Fusiliers (Militia) } Left Cape Town for England
 5th Bn. Royal Irish Rifles (Militia) } on the "Avondale Castle."
 " " Reservists Coldstream Guards } Left Cape Town for England
 Reservists Scots Guards } on the "Tagus."

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval*. Buenos Aires: May, 1902.—Has not yet been received.

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. No. VII. Pola: July, 1902.—"On the Co-operation of War-ships in the Ascertaining of Geographical Co-ordinates of the less known Coasts and Islands." "Tactical Principles for the Building of War-ships." "The Drzewiecki System for Submerged Broadside Torpedo-tubes." "Foreign Naval Notes."

BRAZIL.—*Revista Marítima Brasileira*. Rio de Janeiro: April and May, 1902.—"Report of the Commander of the Third Naval Division on its Recent Cruise." "The Commander-in-Chief." "Some Ideas on the Re-organisation of our Navy." "The Application of Physical Chemistry to the Navy." "On the Value of the Fleet." "On the Instruction in the Naval Schools." "On the Commercial and Maritime Resources of Brazil." "The Santa Anna Lighthouse." "Foreign Naval Notes."

FRANCE.—*Revue Maritime*. Paris: June, 1902.—"On the Method of Finding Lunar Distances." "A Naval Saint-Maxent." "History of the Rudder from

Ancient Times to the Present." "The New Italian Battle-ship 'Benedetto Brin.'" "Report on Madagascar." "Foreign Naval Notes."

Le Yacht. Paris : 7th June, 1902.—"The Naval Annual." "Yachting Notes." "The Cruise of the 'Montcalm' to Russia." "The Geographical Exhibition at Antwerp." "The Mercantile Marine : French and Foreign." 14th June.—"Submarines." "Yachting Notes." "The Naval Manœuvres." 21st June.—"The *Rôle* of Fleets." "Yachting Notes." "The French Mercantile Marine." 28th June.—"Yachting Notes."

Le Moniteur de la Flotte. Paris : 7th June, 1902.—"The French Navy League." "Naval Construction in Germany." 14th June.—"M. Camille Pelletan, Minister of Marine." "The General Staff." "Fleet Scouts." "From Cronstadt to Copenhagen." 21st June.—"Naval War and the Defence of the Colonies." "The Return of the 'Gaulois.'" "Colonial Notes." 25th June.—"The Bordeaux Naval School." "Contact." "The Minister of Marine at Cherbourg."

La Marine Française. Paris : 1st June, 1902.—"Some Fresh Ideas for Discovering the best Battle Formations." "The Greyhounds of the Sea." "A Russian Opinion on Submarines." "The Naval Militia of the United States during the Spanish-American War." 15th June.—"The Necessary and Sufficient Naval Policy." "Trials of the Turkish battle-ship 'Messohudijé.'" "Our War-ships *en Disponibilité*." "The Defence of Genoa and Submarines." "The Question of Gibraltar." "Foreign Naval Notes."

GERMANY.—*Marine-Rundschau.* Berlin : July, 1902.—"The work of the 'Irene' in the Philippine Waters, 1896-99." "Naval Incidents in Past German History." "Determination of the Fighting Value of Ships." "The U. S. I. Gold Medal Prize Essay." "The Naval School of the U. S. Navy at Annapolis." "Latest Improvements in Cables." "A Glance at the Düsseldorf Exhibition." Discussion on the Lectures :— "Navigation Instruction in the German Navy." "Regulation of Helm Orders."

ITALY.—*Rivista Marittima.* Rome : June, 1902.—"The Ocean Trust." "The Social Action of the Navy in History." "Effects of Emigration on the Mercantile Marine." "Submarines in the Nineteenth Century." Letters to the Director :— "Types of Torpedo-boats." "Small Ships." "Composition of Ships' Crews." "Did Magellan Discover the Straits which bear his Name?"

PORTUGAL.—*Revista Portuguesa, Colonial e Marítima.* Lisbon : May, 1902.—"From Tete to Quilox." "Value of Over-sea Trade." "Studies on Emigration." "Proposed Equipment for the Tropical Colonies." "Foreign Naval Notes."

SPAIN.—*Revista General de Marina.* Madrid : July, 1902.—"An Open Order." "One More Opinion." "The New Italian Battle-ship 'Regina Elena.'" "The Cruiser 'Rio de la Plata' and her Krupp 4-inch Q.F. Guns." "Organisation of the French Naval Forces for 1903." "A Memorial on Engines and Boilers, drawn from the recent Trials of the 'Minerva' and 'Hyacinth.'" "Krupp's Armour Plates in the Chamber of Deputies." "Progress of the English Fleet, 1901-02." "Foreign Naval Notes."

MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung*. Vienna: 2nd June, 1902.—“Disembarkation Manœuvres.” “Natural Supplies for the Army.” “Shooting Experiments in Oerkeny.” “An Army Order of the King of Roumania.” “Army Sport.” 10th June.—“Racing.” “The Army and Social Democracy.” “The Conclusion of Peace in South Africa.” 18th June.—“The End of the Parliamentary Session.” “The Two Hundred Years’ Jubilee of the Austro-Hungarian 12th, or Schmidt, Infantry Regiment.” “The Boer Remounts.” 26th June.—“King Albert of Saxony.” “For old Pensioners.” “Cycling in the Army.” “The Re-organisation of the Russian Artillery after the Introduction of Q.F. Guns.”

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: June, 1902.—“Computation of Range Tables.” “Experiments in the Explosion of Objects Composed of Martin’s basal fusel Iron.” “The Nadir Curve of the Ellipsis and Hyperbola; Cognate and Similar Curves.”

Organ der Militär-wissenschaftlichen Vereine. Vienna: Vol. LXIV., Part 5.—“The Attack in Siege Warfare.” “Retrospect on the Occupation of Bosnia in 1878.” “A Contribution to Infantry War Training.” “Means of Testing Spongy and Artificially-prepared Leather for Soles of Boots.”

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires*. Brussels: 15th June, 1902.—“Subordinate Initiative” (*concluded*). “Heavy Field Howitzers” (*concluded*). “Plan of Action.” “Practical Instruction of the Battalion in Germany.” 30th June.—“Plan of Action” (*concluded*). “Practical Instruction of the Battalion in Germany” (*continued*).

FRANCE.—*Revue du Cercle Militaire*. Paris: 7th June, 1902.—“The New Belgian Military Law.” “The New German Garrison Service.” “Notes on the Navy” (*continued*). 14th June.—“In the Transvaal—the Epilogue.” “Tactical Scheme” (1 map). “Notes on the Navy” (*concluded*). 21st June.—“An Army Staff of the Eighteenth Century.” “The Japanese Army at the Grand Manœuvres of 1901.” “Austria-Hungary—The War and Naval Budgets for 1903.” 28th June.—“The Camp at Lazare.” “Organisation of the Military Telegraphic Service.”

Le Spectateur Militaire. Paris: 1st June, 1902.—“The South African War” (5 maps). “The Campaign of 1813” (2 sketches, *continued*). “Recollections of an Officer of Lancers, 1870-71” (*continued*). “History of the Gardes Françaises” (1 engraving, *continued*). 15th June.—“The South African War” (5 maps, *continued*). “The Campaign of 1813” (1 sketch, *continued*). “Recollections of an Officer of Lancers, 1870-71” (*continued*). “Observations on the French Army from 1792 to 1898” (*concluded*). “History of the Gardes Françaises” (*continued*).

Revue d’Artillerie. Paris: May, 1902.—“A Rustic Range-Finder.” “Heavy Motor Wagon Trials in England.” “The New Italian Field Artillery—the ‘75 A Matériel.”

June, 1902.—“Automatic Pistols.” “The New Italian Field Artillery.”

Revue Militaire. Paris: June, 1902.—“Study of the South African War, 1899-1900” (*continued*). “The Influence of Modern Arms on the Offensive and on the Defensive” (*continued*). “The Russian Imperial Manœuvres of 1901” (*concluded*). “The German Mobilisation and Centralisation in 1870” (*continued*).

Revue du Service de l'Intendance Militaire. Paris: May, 1902.—“The Appearance of Starch in Fresh and in Stale Bread.” “The Provisioning of the French Expeditionary Corps during the Chinese Campaign of 1900-01” (*continued*). “Lecture on Agricultural Statistics and on the Supply Service.” “The Chief Canadian Foodstuffs Exhibited in Paris in 1900.” “Contribution to the Study of the Industrial Chemistry of Flour, especially as regards Gluten and Starch” (*continued*). “Military Jurisdiction” (*continued*). “The Present Law regarding Land Warfare: Its Application in Recent Conflicts” (*continued*). “Note on the Trial of Jute in Clothes.”

Journal des Sciences Militaires. Paris: June, 1902.—“The Two Years' Service Scheme before the Senate and the Chamber” (*concluded*). “The Constitution of Army Corps in all Armies.” “Archives and Correspondence of General Jean Hardy” (*continued*). “In-Salah and Tidikelt” (*continued*). “Study of Field Service and the Second Part of the Infantry Manœuvre Regulations.” “The Eastern Manœuvres in 1901” (*concluded*). “A German Infantry Division in Action” (*concluded*). “The Foreign Legion and Colonial Troops” (*continued*).

Revue d'Histoire. Paris: June, 1902.—“The Origin of Grand Manœuvres: Camps of Instruction in the Seventeenth and Eighteenth Centuries” (*continued*). “The Campaign of 1805 in Germany.” “The Dombrowski Division in the Campaign of 1812.” “The War of 1870-71: The 6th August in Lorraine” (*continued*).

Revue du Génie Militaire. Paris: June, 1902.—Has not been received.

Revue de Cavalerie. Paris: June, 1902.—Has not been received.

GERMANY.—*Militär-Wochenblatt.* Berlin: 4th June, 1902.—“The Johanniter Order.” “On Railway Protection.” “Theory of Artillery Combat.” “Polo.” 7th June.—“The Crisis in Swiep-Walde—A Reply.” “The Cost of the First Two Years of the Boer War.” “The Re-organisation of the Russian Artillery after the Introduction of Q.F. Guns.” “Intelligence from the Belgian Army.” 11th June.—Reinhold Koser's ‘Frederick the Great.’” “The Anglo-Abyssinian Expedition against the Somaliland Mahdi.” “The Action of the Divisional Surgeon before, during, and after the Battle.” 14th June.—“Russian Observations regarding Musketry in the Army.” “Work of the Youngest Remounts.” 18th June.—Fehrbellin, the 18th June, 1675.” “A Mercenary Army and a People's Army.” “Russian Observations regarding Musketry in the Army” (*concluded*). “Intelligence from the Norwegian Army.” 21st June.—“The Royal Prussian and XIIIth (Württemberg) Army Corps Army List.” “A Mercenary Army and a People's Army” (*concluded*). 25th June.—“Infantry Frontal Attack on Open Ground.” “Intelligence from the Anglo-Indian Army.” “The Sultan of Morocco's Army.” 28th June.—“Drill and Musketry Regulations for the Machine-Gun Sections.” “The Russian Imperial Manœuvres for September, 1902.”

Internationale Revue über die gesamten Armeen und Flotten. Dresden: June, 1902.—“Military and Naval News from Austria-Hungary, Bulgaria, Denmark, France, Germany, Great Britain, Italy, Japan, Russia, Spain, Switzerland, Turkey, and the United States.” *Supplement 30.*—“Great Britain's Armed Strength with Her Reforms.” *French Supplement 39.*—“The Bagdad Railway and the Persian Gulf.” “Observations of Captain Dunn on the Manufacture of War Matériel in the United States and in Europe.” “Gun Foundries.” “The Political and the Military Importance of Sweden and Norway.” “The Large Armour Plate at the Düsseldorf Exhibition” (with 3 plates). “The German Powder Industry and Foreign Armies.”

Jahrbücher für die Deutsche Armee und Marine. Berlin: June, 1902.—“Guns with Non-Recoil Carriages.” “Düppel, 1864.” “The Battle Training of Infantry.” “The New Government Works Corps.” “The Hygienic Principle in Armies.” “Single Batteries?—Twin Batteries?” “Various Opinions on the Training of Hacks judged from the Automatic-Mechanical Point of View.” “The Re-armament of the Italian Field Artillery” (*continued*). “The War Matériel at the Düsseldorf Exhibition of 1902.”

ITALY.—*Rivista di Artiglieria e Genio.* Rome: June, 1902.—Has not yet been received.

Rivista Militare. Rome: June, 1902.—“The Defence of the Alps with the Assistance of the Bersaglieri.” “The Regulation Relating to Military Courts.” “French Expansion in Central Africa.” “Military Landscapes.” “On the Levy of Youths born in 1880 and the Army Returns from July, 1900, to June, 1901.” “Foreign Military Notes.”

PORTUGAL.—*Revista de Engenharia Militar.* Lisbon: May, 1902.—“The Lighting and Buoying of the Bay of Lourenço Marques.” “Geological Study of the Polygon of Tancos.” “The Quarters of Infantry Regiments.”

Revista de Infanteria. Lisbon: May, 1902.—“Mitrailleuses.” “Instruction of the Effectives.” “Practical Schools and the Complementary Instruction.” “Uniforms.” “Two Years’ Service and the Reduction of the Effectives.”

June, 1902.—“Mitrailleuses” (*continued*). “The Duke of Braganza.” “The President.” “*Revue du Cercle Militaire.*” “Two Years’ Service and the Reduction of the Effectives” (*continued*). “Practical Schools and the Complementary Instruction” (*continued*).

RUSSIA.—*Voënnnyi Sbornik.* St. Petersburg: April, 1902.—“Prince Alexander Ivanovitch Tchernycheff” (*continued*). “From Sistovo to Galrovo, 1877.” “Notes on the Bulgarian Militia.” “Operations of the Black Sea Fleet in 1853-54” (*concluded*). “The German Infantry—Its Education and Instruction” (*continued*). “Instruction and Education of the Cavalry Soldier.” “The Influence of Q.F. Artillery on Tactics.” “The Telegraph Company in Engineer Battalions.” “Automobiles in Western European Armies.” “War.”

May, 1902.—“The Souvaroff Gun.” “Three Years of the Life of the 6th Libava Infantry Regiment.” “The General Staff” (*continued*). “The German Infantry—Its Education and Instruction” (*continued*). “The Instruction and Education of the Cavalry Soldier” (*concluded*). “A Hiatus in the Firing Preparation of the Battery in Action.” “The Organisation and the Special Preparation of Railway Troops.” “Financial Preparation for War.” “Conversation in a Military Club.” “Former Times in the Russian Army.” “Military Technical Schools of Instruction in Austria-Hungary.” “War.”

June, 1902.—“The 15th June, 1877.” “Three Years of the Life of the 6th Libava Infantry Regiment” (*continued*). “The War of 1854-55 on the Coast of Finland.” “Notes on the French Infantry.” “Letter of a Former Cavalryman.” “The Organisation and the Special Preparation of Railway Troops” (*concluded*). “Financial Preparation for War” (*concluded*). “Former Times in the Russian Army.” “Preparatory Military Instruction in the Countries of Western Europe.” “War.”

SPAIN.—*Memorial de Ingenieros del Ejército*. Madrid: May, 1902.—“Verification of Ampère-metres by Electro-Chemical Method” (*continued*). “Wireless Telegraphy” (*concluded*). “A Theoretical-Practical Study of the Spanish Pontoon-Train Regulation” (*continued*).

Revista Técnica de Infantería y Caballería. Madrid: June, 1902.—Has not yet been received.

SWITZERLAND.—*Revue Militaire Suisse*. Lausanne: June, 1902.—“The Norwegian Army.” “The Infantry Method of Fighting according to the New Austrian Regulation” (*concluded*). “In the Artillery.”

UNITED STATES.—*The United Service*. New York: June, 1902.—“The Horses of the World’s Armies.” “The Scots at Waterloo.” “The Captive’s Choice.” “War as a Teacher of War.” “A Tangled Web” (*continued*). “Personal Recollections of what happened in Manila Bay after the Battle.” “Service Salad.” “Late Rear-Admiral William T. Sampson, U.S.N.”

Journal of the United States Artillery. Fort Monroe, Virginia: May-June, 1902.—“The Re-organisation, Care, and Service of a 16-Mortar Battery.” “Comments on ‘Report of Coast Artillery Target Practice, Fort Monroe.’” “Note—Answers to Capt. Haan’s Inquiries.” “A Battery Manning Drill.” “Extract from the Proceedings of the Board of Officers convened at Fort Wadsworth, N.Y.” “Professional Notes.” “Book Reviews.”

NOTICES OF BOOKS.

The Naval Annual, 1902. Edited by the Hon. T. A. BRASSEY. 8vo. Portsmouth: Griffin & Co., 1902.

Lord Brassey’s valuable Naval Annual, 1902, appears again edited by his son, the Hon. T. A. Brassey, whose modest preface disarms criticism but invites comment. Undoubtedly, alterations of decision by Boards of Admiralty as to ship armament is a cause of possible inaccuracy, and page 183 of the tables gives the designed armament of the new battle-ships “Queen” and “Prince of Wales,” but on reference to the sketch of those vessels under the heading of the “Formidable” class, it is clear that a considerable error of gun armament occurs, which so far reduces the value of the work for accuracy. Chapter V. deals with the fleets manœuvres of the past year in somewhat a professorial manner. The decision of the Admiralty to publish a narrative and not a criticism of those operations is probably sound, but clearly this course gives a fine field to an arm-chair critic, and in that field many labourers have ploughed furrows in various directions. Lord Brassey’s historian assumes as impossible of negation that for a sound scheme of naval exercise the forces on either side should be of equivalent fighting value, but it is lawful to learn from the experience of others, and that point is settled from a divergent view in another quarter, as may be seen from the report of the French manœuvres in this same volume. The commanders, both of the X and B fleets, are severely criticised in the Annual for abstaining from entering into a night combat; the risk would have been enormous had they so done, and the experience would have been very difficult to tabulate and record, for darkness covers

a multitude of sins, both of omission and commission, and without accurate records the value of manœuvres is enormously reduced.

"Tweedledum and Tweedledee" are persons of much light if not of much leading in their own sphere, but they (or the historian) seem to joke with some difficulty on their re-appearance.

It may be noticed that the French fleet headed off the African coast in a moderate breeze of wind, when the big ships held their way and could fight their guns; the smaller battle-ships seem to have held their way, but could not fight their guns; and the small craft could do neither one nor the other.

Mr. Leyland, in Chapter VII., gives an account showing research and a judicial mind on the part of the author of various invasion attempts against this country.

The chapter on submarine boats by Commander Robinson is full of information, and the history of the past is only excelled by the interest of speculation as to the future.

Mr. Dunell gives a judicious summary of the conflicting difficulties met with in the selection of water-tube or of tank boilers for employment in fighting-ships. This chapter (IX.) forms an adequate and needed counterpoise to the exaggerated statements of half-informed people in the Press and in Parliament. Much in that portion of the chapter dealing with the turbine system of propulsion is new, and all is accurate.

The portion of the volume devoted to armour and ordnance is not altogether satisfactory, although without doubt it contains valuable information on various subjects; but expert questions demand expert examination and analysis. The writer on casemates and turrets is evidently sincere, and has not penned a trade advertisement, but the advantages of turrets are somewhat less than he admits, and the drawbacks to casemate mounting are also less, for example, the supply of ammunition is much easier in casemates than in turrets, and independent hand-working of guns in case of accident to machinery is more feasible in casemates than in turrets; but these, like all matters, at least in ship construction, are questions of balance and compromise.

The later chapter on guns and projectiles is open to criticism which the armour chapter avoids, and the writer fails to place value on standardisation of armament; it is not many years since the country was awkwardly placed from inadequate consideration of this grave question.

Campagne de l'Empereur Napoléon en Espagne (1808-1809). Par le Commandant breveté BALAGNY. Tome I. Durango, Burgos, Espinosa. Paris: Berger-Levrault, 1902.

The activity of the historical section of the French general staff just now is astonishing. It is writing the history of the war of 1870 on a gigantic scale, but it is simultaneously engaged also upon the campaigns of Marshal Saxe, the campaign of 1794 in Belgium, and those of 1805 and 1809 in Austria. And here we have the first of four volumes to be devoted to the three months which Napoleon spent in Spain in the winter of 1808-9.

This brief campaign has not the attraction of the one which followed it a few months later upon the Danube. The forces were too unequal, the Spanish troops and generals too indifferent; and we must wait for the fourth volume for an account of the exciting chase after Sir John Moore. Yet even in this first volume the military student will find a great deal that is instructive and interesting. The treatment is so full that he can follow not only what was actually achieved, but what was planned and hoped, and how the general situation presented itself from day to day.

When Napoleon reached Spain early in November the French troops were behind the Ebro, and the Spaniards were scheming operations on either flank against their lines

of communication. To defeat the Spaniards was a small matter ; the problem was to crush them : and Blake's Army of the North, which had rashly ventured east of Bilbao, seemed to give an opportunity for a second Ulm. Perhaps the most interesting thing in the present volume is to see how this opportunity miscarried owing to the jealousies of the marshals and their self-seeking. Lefebvre, eager to score a victory, attacked Blake prematurely at Durango and drove him back ; Victor, irate that one of his divisions should have been lent to Lefebvre, gave lukewarm support ; and between the two, the division in question, that of Villatte, was nearly sacrificed. A few days afterwards, Victor, stealing a march on Lefebvre, overtook Blake and defeated him at Espinosa, but for want of Lefebvre's co-operation the victory could not be followed up. How much the want of good fellowship among the marshals had to do with the loss of Spain is well known, but it is surprising to see it in full operation under the eye of the master.

In addition to an excellent map of North-Eastern Spain and plans of battles—there is a series of maps showing the distribution of the opposing forces at intervals of three or four days. These save the reader from much weary search after names, and give the general position at a glance. A book like this provokes some legitimate indignation at British backwardness. The war in the Peninsula is only one among numberless French wars, and not one to which Frenchmen can look back with much pride or pleasure. It is the finest feather in the British cap ; but what has been done officially to commemorate it worthily or make it intelligible ? Napier's history—a private undertaking—is a masterpiece, but it needs supplementing after a lapse of half a century, and its maps were mere sketches. We have just had a committee on military education, which scourges the young officer for his neglect of his profession, and recommends annual examinations in military history. But it neglects to recommend the most obvious essential : the creation of a military history section in the Head Quarters staff. Perhaps it may be said it is our British way to trust to private enterprise, and, indeed, an Oxford professor is doing his best just now to retell the story of the Peninsular War. But such accounts of campaigns as military students require, with ample detail and good maps, are not things that can be undertaken as a publisher's venture, especially in England.

We cannot do better than quote here the last sentence of an article in the April number of the *Edinburgh Review* on "War as a Teacher of War" :—

"The study of military history by our officers is all-important ; but the first step towards that study is its popularisation among them, and the first step in that popularisation is the provision of ample facilities for obtaining materials for the study—a provision which should not be left to private enterprise, but which it is the duty of the military authorities to secure."

PRINCIPAL ADDITIONS TO LIBRARY DURING JUNE, 1902.

The Mechanism of War. By "LINESMAN." 8vo. London, 1902.

Compilation of Narratives of Explorations in Alaska. Official. Demy 4to. Washington, 1900.

Combined Training (Provisional). Official. Demy 12mo. London, 1902.

The Uganda Protectorate. By Sir HARRY JOHNSTON, G.C.M.G., K.C.B. 2 vols. Large royal 8vo. 42s. London, 1902.

Instruction in Military Engineering. Part I. Field Defences. 7th Edition. Official. 8vo. London, 1902.

Military Engineering. Part III. Military Bridging and Use of Spars. 4th Edition (1894). Corrected to January, 1902. Official. 8vo. London, 1902.

War Horses Present and Future, or Remount Life in South Africa. By SYDNEY GALVAYNE. Crown 8vo. 2s. 6d. London, 1902.

Professional Papers of the Corps of Royal Engineers. Edited by Captain R. F. EDWARDS. Vol. XXVII. 8vo. Chatham, 1901.

The Naval Miscellany. Vol. I. Edited by J. K. LAUGHTON, M.A., R.N. Navy Records Society. 8vo. London, 1902.

Admiral of the Fleet Sir Geoffrey Phipps Hornby, G.C.B. By Mrs. FRED EGERTON. 8vo. London, 1896.

Campagne de 1793 en Alsace et dans le Palatinat. Publié sous la Direction de la Section Historique de l'État-Major de l'Armée. By J. COLIN. Tome I. 8vo. Paris, 1902.

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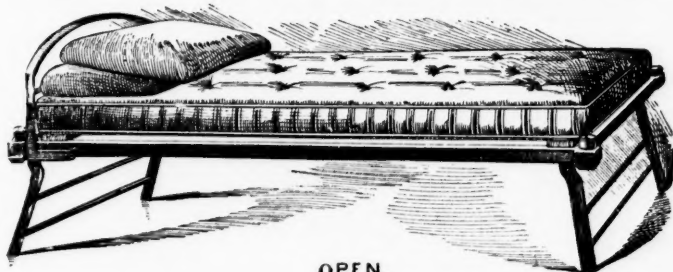
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